

TAn-in-**duct**

for to lerne to reckon with the pen, or with
the counters accordyng to the trewe cast
of Algorisme, in hole numbers or in bro-
ken/ newly corrected. And certayne nota-
ble and goodlye rules of false posytions
therevnto added, not before sene in oure
Englyshe tonge, by the whiche all maner
of difficyle questyons may easily be dissol-
ued and assolyd. Anno dñi. 1539.



Thom. Jan. 1539



And feate (dere reader) whome vtilite and necessity bothe do commende, needeth greatly of no other commendation. Howe profytable and necessarye this feate of Algorisme is, to all maner of persons, whiche haue rekenynges or accountes, other to make, or elles to receyue, needeth no declaration. Neyther is this arte onely necessarye to those, but also in maner to all maner of sciences, and artificyes. For what crafte is that but it somtyme dothe occupye not onely one parte of this feate, bnt all the partes. And forbycause that dyuers rules in this booke haue not ben in tymes past, very comodiously expessed, and set forth/and many examples, mo then nedid a greate sorte coheapyd togyther. Therefore paynes haue ben taken bothe in the better and moze clearer declaration and expessyng of the sayd rules: and also in the relectyng and cuttyng of dyuers superfluous and voyde thinges, rather byn

Derance



derance to the dilygente reader, then
therance. Forthermore there is added
rules of false posytions, the whiche how
conuenient and profytable they be to the
readye solution of all harde & mysty que-
stions: when ye haue redde theym then
iudge. Now thenne ye shall vnderstande
that in this arte there are . vii. necessarye
and distinct partes to be knowen. Num-
eration, Addicion, Subtraction, Multipl-
cation, Partition, Progressyon, and Re-
duction. Of the which. vii. hereafter shall
be syngularly entreated, of eche of theym
in theyr chapters. But I aduertise you
fyste to begynne at the fyfte parte, & then
successyuely to the seconde, and thyrde. &c.
lernynge euery parte by it selfe exactly,
as they be set forth in this boke: for yf
you lepe to the seconde parte, before
you haue perfectly the fyfte, or to
the thyrde, before you haue
sene the second, you shall ne-
uer prosper ne profette
in this arte. Vale.

Finis.

a.ii.

The

The fyrste parte is of
Numeration.



Numeration is a maner
of exp̄essyng of num-
bers by certayn figurs
whiche are callyd fy-
gurs of Algorisme, the
whiche be tenne, as in
this example.

i	ii	iii	iiii	v	vi	vii	viii	ix	
1	2	3	4	5	6	7	8	9	0

of the whiche nyne be sygnifycatyue, the
tenthe called a siphre, sygnifieng nothyng
of it selfe, but only set befoze the other sig-
nifycatyue fygures augmentyth theyr sig-
nification. In numeration by this crafte
ye muste euermoze begynne at the ryghte
syde of the boke, and so towarde the lefte
syde/as in this example.

k i h g f e d c b a

3 2 0 4 6 7 5 1 8 9

This fygure 9 vnder a, standeth in the
fyrste place/ 8 vnder b, standeth in the se-
conde place/and so forthe to the ende / soo
that

that : vnder k, standyth in the laste place.
By these tenne fygures all maner of num-
ber possyble to be excogitate, maye cleare-
ly and playnely be expressed : whiche all
be it, that of them selfe they sygnifye but
symple and lyttell number, as ye se afore,
yet accordyng to the dyuersite of the place
they stande in, dyuersly dothe there signi-
fycation amount. wherfore in numeratiō
ye muste note twoo thynges / the fygure
significatyue, and the place it standeth in:
for the signyfycation of the fygure Depen-
deth vpon the number of the place it stan-
deth in : for example / this fygure 8 stan-
dyng alone, or in the fyrste place sygni-
fyeth but. viii. but yf he stande in the se-
conde place, as here 80 he sygnifyeth. viii.
tymes tenne / whiche is callyd. iiii. scoze.
yf he stand in the thyrde place, as here 800
he signifyeth. viii. hundreth. &c. Therfore
ye must knowe perfectly the sygnificatiō
of euery place, before ye can perfectly nū-
ber. wherfore vnderstond ye, that the fyrst
place is a place of vnitees, so that a figure
standynge in it, signifieth noo moze then
a.iii. though

though he stande alone. The second place
is a place of tennes. The thyrde is a place
of hundrythes. The fourth place, is a place
of thousandes. The fyfte place, a place of
tenne thousandes. The. vi. place, a place
of hundzeth thousandes. The. vii. place,
is of a thousand thousandes, which is cal
lyd a myllyon. The. viii. place, is of tenne
myllions. The. ix. is a place of hundzeth
myllions. The. x. of thousand myllions.
The. xi. of ten thousande myllions. The
xii. of a hundzeth thousande myllions.
The. xiii. of a thousand thousand myllio,
whiche is called myllion vppon myllion.
And so forth infinitely, euery place ensu
enge, signifyeth. x. tymes as moche as the
place goynge before. This muste thou
knowe perfytely what euery place gyueth
and signifyeth: for the place gyueth deno
mination, and the fygure standyng in the
same place expressyth how many of the sa
me denomination is to be vnderstand: as
in example ye shal moze playnly perceiue.

In this summe 3400872619 this figure
= standyth in the. iiii. place/ nowe by your
rule

rule afoze, the.iiii. place is a place of thou
sandres / then this fygure 2 standynge in
the same place gyueth vs to wytte, that it
is two thousande. Lykewyse this fygure
8 standeth in the.vi. place, nowe by your
rule afoze spoken of, the .vi. place is of
honderth thousandes : then this fygure 8
sytuat in the same place receiuethe denomi
nation of the place, and representith to vs
viii. hondzeth thousandes. Lykewyse
this fygure 1 standeth in the seconde place
and forbycause the second place is a place
of tennes, therfore this fygure 1 standynge
there is bounde to the signification of the
place, and soo signifyeth one ten : yf a fy
gure of 4 stode there, it shold signifye.iiii.
tennes, that is forty / and so forth. Then
for a farther declaration of the foresayde
summe, and all other lyke summes: This
figure 9 standynge in the fyrste place, sig
nifyeth but hym selfe, that is.ix. This fy
gure 1 standynge in the seconde place, by
cause the seconde place is euer a place of
tennes, sygnyfyeth one tenne. The fy
gure 6, standynge in the thyrde place,

a.iiii.

bycause

bycause the thyrde place is a place of hund-
deth, doth signifye. vi. hundred: the fy-
gure 2 in the fourth place, signifyeth. ii.
thousand: the fygure 7 forbycause it stan-
deth in the fyfte place, and that place is
a place of tenne thousandes, it signifieth
vii. tymes tenne thousande, the whiche is
iii. scoze thousande and ten: the fygure 8
in the. vi. place signifyeth. viii. hundred
thousand: the sypher 0 that standyth in
vii. place signifyeth nothyng, but onely
maketh vp a place that the fygures signi-
fy catyue folowynge maye encrease there
signification. Lyke iudgement is of the
sypher standynge in the. viii. place: in the
ix. place standeth the fygure of 4, and this
place, is a place of hundred myllions:
therfore this fygure 4 there signifyeth
iiii. C. myllions. In the. x. place standeth
the fygure 3, and this place is a place of
thousande myllions: therfore it signify-
eth. iii. thousande myllions. So the hole
summe is, thze thousand myllions. iiii. C.
myllions. viii. C. thousand, thze scoze thou-
sand. xii. thousand, vi. hundred, and. xix.

Nowe

Nowe to exerceyse your selfe in numerati
 number with your selfe these summes fo-
 lowynge, & you shall be perfecte ynough.
 Myllyō. Mil. Mil. Mil.

x.	M.	C.	x.	M.	C.	x.	one,
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	9
9	9	9	9	9	9	9	9

Furthermoze thou muste note that there
 be in algorithme thre maner of numbers,
 Diget number, Artycle, and Composte,
 The dygette nomber, is all maner of
 numbr̃es, whiche are vnder .x. as these.

9 8 7 6 5 4 3 2 1.

The artycle number is, all numbr̃es
 whiche are of .x. as these.

10 20 30 40 50 60 70 80 90.

The compounde number is all maner
 of numbr̃es which are compoūde oꝝ made
 a. v. of

If the dyget & artycle togyther, as folow.

21 22 23 24 25 26 27 28 29

21 22 23 24 25 26 27 28 29

31 32 33 34 35 36 37 38 39

And so forth of all other. This is suffycy-
fo: the knowlege of nūbre in Algorisme.

The seconde parte called Addition.



Addition is a collectiō
of diuers and sundye
sūmes, in to one totall
summe, whiche contay
nyth as moche in hym
as all the other sūmes,
beynge befoze sundye.

In addition are two nombres to be consy-
deryd, the one is, the nūbers whiche must
be adioyned togyther: the other is the nū-
bers which redoundeth of there addition
together, whiche otherwyle is callyd the
totall summe. Then when ye wyl adde
many summes togyther, fyyste write them
fayze the one dyrectely vnder the other, so
that the fyyste figure of the one, be ryghte
vnder the fyyst of the other, & the seconde
vnder

vnder the second: euery place correspou-
dent vnder other: that done drawe a lyne
vnder al these seuerall summes, as is to se
in the exāple folowynge. And when ye wyl
adde your nūbers togyther, begyn at the
fyrst places of your sūmes & adde all the
fygures that ye se in the fyrst places of all
your summes togyther, and þ̄, that cōmeth
of that addition: se whether it be dygette
number, article, or cōpost/ yf it be but dy-
get, set þ̄ dyget benethe the lyne, directly
vnder the same fyrst places: yf it be article
put a cypher beneth the lyne, ryght vnder
the same fyrst place, & reserue þ̄ article to
be added to the next places of thy sūmes,
& there do lykewyse: yf it be cōpost, set the
dyget vnder the lyne ryght vnder þ̄ same
place, & reserue the artycle in your mynde
lykewyse to be addyd to the nexte places
of thy sūmes: when the fygures standing
in the last places of your summes be ad-
ioyned togyther, yf any artycle or arty-
cles remayne, set them downe next to the
fygure ye sette laste befoze vnder the same
lyne: as by exāples shall appere.

The

The fyrste somme	6	7	8	9	4	
The seconde somme	3	4	5	6	7	
The thyrdesomme	2	3	4	5	6	
The fourth somme	7	8	9	3	4	
The fyfth somme	6	7	4	2	5	
The syrthe somme	3	4	3	2	2	
<hr/>						
Somma totalis	3	0	6	5	9	8

your fygures set after this sorte, adde all the fygures that ye fynde in the fyrste places of all the summes togyther, begynnynge at the nethermoste sayenge, 2 & 5 is 7, and 4 that is 11, and 6 that is 17, and 7 that is 24, and 4 that is 28. This is the hole summe of the figurs addyd togyther founde in the fyrst places, the whiche number is composte: wherfore, as is in your rule, ye muste set the dyget ryghte vnder the same place, benethe the lyne, the whiche is 8, & kepe the artycles in your mynd, whiche is 2. Nowe to the seconde place, towarde the lyfte hand, say, 2 that I haue in mynde and 2 is 4, and 2 waketh 6, and 3 is 9, and 5 is 14, and 6 is 20, and 9 is 29, nowe set the 9 vnder 2, & kepe 2 in mynde, and adde them to the fyrste fygure of the thyrde

thyrde place, that is 3. Now say 2 and 5, and 4 is 9, and 9 is 18, and 4 is 22, and 5 is 27, and 8 is 35. Now set 5 vnder 3, and kepe 3 in mynde. Now to the fourthe place, towarde the lyfte hande where 4 standeth/ now 3 that ye haue in mynde and 4 is 7, & 7 is 14, and 8 is 22, and 3 is 25, & 4 is 29, and 7 is 36, set 6 vnder 4, and kepe 3, and adde that 3 to the vndermost fygure of the syxt somme that is 3, and saye, 3 and 3 is 6, and 6 is 12, and 7 is 19, & 2 is 21 and 3 is 24, and 6 is 30. All the fygures of this place added together as ye se, maketh article number, wherfore accordynge to your rule set a cyfer 0 vnder that place beneth the lyne, and the artycle whiche is 3 nerte to the same cyfer, & al is finished. And all these sūmes thus collected together maketh 306598.

An other example of addition.

1	0	0	6	6	7	8	4	5
6	0	0	0	3	1	9	5	0
5	0	0	5	4	5	1	6	1
			8	0	1	2	0	2
					6	4	2	1

1 2 0 2 0 5 2 5 7 9

Begin

gyn fyrste, as ye dyd before, at the fyrst
places, addyng them all togyther, begyn-
nyng at the nethermost, sayenge: 1 and 2
is 3, and 1 is 4, and 5 is 9, this is the hole
sunne of the fygyres standyng in the
fyrste place, the whiche is dyget number,
and therfore, accordyng to the rule, sette it
ryghte vnder the same place benethe the
lyne: then procede to the second place, and
begyn at the nether ende sayeng, 2 and 6
is 8, and 7 is 13, and 4 is 17, these number is
compose nuber, therfore set þ dyget ryght
vnder that place beneth the lyne, which is
7, reseruyng the artycle in your mynde,
and so to the thyrde place, sayeng, 1 that I
haue in my mynde and 4 that is 5, & 2 is 7,
and 1 is 8, and 9 is 17, and 8 is 25, this num-
ber also is cōpost, wherfore set the dyget 5
vnder that thyrde place, & reserue the arti-
cle 2 in mynde to the nexte place, then to þ
next places sayeng, 2 þ I haue in minde &
6 is 8, & 1 is 9, & 5 is 14, & 1 is 15, & 7 is 22, this
is also cōpost, therfore set þ dyget 2 vnder
that fourth place, & reserue the article 2 to þ
next places/then to the fyfth place sayeng
2 that

that I haue in mynde 7 4 is 6, 7 3 is 3, 7 2 is 15, this is also compost nūber / set the diget 5 vnder þ̄ fyfth place, and kepe þ̄ arty-
cle in mynde / to the .vi. place sayenge, 1 þ̄
haue in mynde 7 8 is 9, 7 5 is 14, and 6 is 20
this is article nūber, therfore accoꝝdyng
to the rule set a cypher vnder þ̄ place be-
nethe the lyne, 7 kepe the article in mynde
and cum to the .vii. place, in þ̄ which pla-
ces foꝝ bycause thou fyndest nothyng but
cyphers to the which þ̄ myghtes adioyne
thy article reseruyd, the which was 2, ther-
foꝝ vnder the same .vii. place set that same
reseruyd 2, and then com to the .viii. place,
and there fyndest þ̄ nothyng but cyphers,
wherfoꝝ vnder the same place set benethe
the lyne a cypher, accoꝝdyng to the rule,
then come to the .ix. places 7 say 5 and 6 is
11, 7 1 is 12, the which is cōpost nūber, ther-
foꝝ set þ̄ diget which is 2 vnder the lyne 7
reserue þ̄ article in mind, which is 1, 7 now
foꝝ bycause there is no mo places wher-
vnto ye myght adde this reseruyd article
therfoꝝ accoꝝding to your rule ye shal set
it downe next vnto the fygure that ye dyd
sette

set vnder the lyne laste, as is in your example. This .ii. examples were sufficient ynough to the redynesse of addition, how be it, yet that it maye be the playner, I wyll subscribe an other example.

1	4	6	9	9	0	0	0	Adde the fyrst place to
3	8	2	9	0	2	0	0	gyther. Fyrste there
0	1	0	9	1	6	0	0	thou fyndest nothyng
	1	0	2	0	0	0	0	but cyfers / wherfore
<hr/>								sette a cyfer vnder the
5	5	1	0	0	8	0	0	lyne, and so lykewyse

in the seconde place. In the thyrde place thou fyndest 6 and 2 whiche maketh 8, the whiche for bycause it is dygette number, sette it vnder that place beneth the lyne. In the .iiii. place is 1 and 9 which maketh 10, and for bycause that this is artycle numbre, sette a cypher vnde that place benethe the lyne, and reserue the article to the next place sayenge, 1 that I haue in my mynde and 2 is 3, and 9 is 12, and 9 is 21, and 9 is 30 this is also artycle numbre, wherfore sette a cypher vnder that place beneth the lyne and reserue the article 3 in mynde to the nexte

nexte place. Then come to the. *vi.* place:
 sayenge, ³ that *I* haue in my mynd and ²
 is ⁵, and ⁶ is ¹¹ this, is composte numbze
 therfoze *I* set the dyget which is ¹ ryght
 vnder that place beneathe the lyne, and
 reserue the artycle ¹ to the nexte place,
 sayeng ¹ and ¹ is ², and ¹ is ³ and ⁸ is ¹¹, and
⁴ is ¹⁵, this is allso compost, therfoze sette
 the dyget ⁵ vnder the lyne, and adde the
 artycle reseruyd to the sygure in the next
 place sayenge, ¹ and ³ is ⁴, and ¹ is ⁵, this
 is dyget nombze therfoze sette it vnder
 the lyne, and all is done.

Certayne examples to practyse your
 selfe in touchynge the exercyse
 of addition.

1 6 7 6 8 9 0 0

3 6 2 1 9 8 8 0

9 2 0 0 0 0 3 2

1 1 1 1 6 8 4 1

1 9 4 2 1 3 2 6

1 7 5 5 2 6 9 7 9

1 0 0 0 0 0 0 0

1 3 4 5 6 2 8 9

2 0 0 2 0 1 0 1

1 0 0 0 0 0 0 0

3 8 9 2 1 0 0 0

9 2 3 9 7 3 9 0

b.i.

9	0	9	0	2	0	1	0	0	0
2	6	5	1	2	6	0	0	0	9
	2	5	4	3	2	0	0	1	
	2	1	6	5	4	0	0	0	
		9	6	2	0	0	1		
			1	0	0	0			

11789510010

9	0	0	0	2	6
2	0	5	8	1	2
9	0	1	0	0	0
9	0	9	6	1	9
1	0	0	0	0	0

3016457

6	4	0	0	0	0
8	6	0	0	0	0
9	9	8	0	0	0
7	8	0	0	0	0
5	9	0	0	0	0
1	0	0	0	0	3

3988009

3	0	0	0	2	6	8
1	0	6	0	9	8	6
1	0	0	0	9	5	9
1	0	0	0	9	3	9
2	0	0	0	9	1	7

8064069

Of the proue of addition.

For the proue of additiō ye shall make a crosse after the fashyon that folowyth. And then ye shall come fyrste to the addyble summes, and plucke out all the 9 that ye fynde there, and the reste what so euer it be, & wyl not make 9 set it at the vpper syde of the crosse. Then come to the totall sum

summe vnder the lyne and lyke wyse dede
 duck all the 9 that ye can fynde there: and
 that that remayneth, not able to make 9
 set it at the vndermost parte of the crosse,
 and yf it be lyke the remenant of the ad-
 dyble numbres which standyth in the vp-
 per parte of the crosse, your worke was
 good, yf not it was naught, as by exam-
 ple ye shall the better perceyue.

C And example of the proue.

A	2	5	0	6	7	0
B	3	3	0	4	2	8
<hr/>						
C	5	8	1	0	9	8

Nowe for to make the proue of this
 nombres, ye shall begyn at the fyrste fy-
 gure that ye haue made, in sayenge, 8 and
 0 is 8 and 2 is 10, take awaye 9 then there
 resteth 1, than 1 and 7 is 8, and 4 is 12, take
 awaye 9 reste 3, than 3 and 6 is 9, than
 to the two cyfers of nothyng that no-
 thyng do sygnifie, thanne 3 and 5 is 8
 and 3 is 11, take awaye 9 reste 2, thanne
 b.ii, 2 and

1 and 2 is 4, this 4 it behoueth you to
 put at the nether ende of the crosse, than
 come too the place of C. vnder the lyne,
 and saye 8, and ye shall leue the 9 and the
 cyfer 0 that is nothyng woꝛthe, and ad-
 ioyne therto and make it 9, & leue that/
 than 8 and 5 is 13, take away 9 reste 4, whi-
 che 4 ye shall put at the vpper ende of the
 crosse/and than is your pꝛoue good / foꝛ
 bothe the endes be lyke as
 ye se in this fygure of the
 crosse. And at the two o-
 ther endes, ye shal put two
 0 0 in certifyenge that of
 them cometh nothyng.

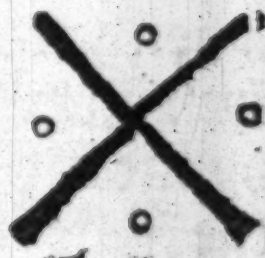


¶ An other example.

A	7	8	9	1	5	4	3	2	6	li.
B	4	9	3	0	0	6	7	1	5	li.
C	2	0	9	9	3	4	7	8	4	li.
D	4	6	0	6	4	5	5	3	0	li.
E	9	3	6	4	5	8	7	7	8	li.
F	4	4	5	1	9	3	0	0	1	li.
G	33	3	4	3	9	3	1	3	4	li.

We shall saye semblably 1 and 8 is 9
 and alwayes leue them/than 0 that dothe
 nothyng/than 4 and 5 ben 9/than 6/then
 we shall retourne to the tenthes, & shall
 fynde 0 that doth nothyng/than 7 that
 maketh 9 reste 4, than 3 ben 7 than 8 ben
 9 rest 6, than 1 is 7, than 2 is 9/than 0 that
 is nothyng worth/than 7 and 5 is 9 rest 3
 than 7 is 9 rest 1, than 7 is 8 and 3 is 9 reste
 2. Thanne we come to the place of hun-
 dretes, & adioyne the 2 to the 3 that is 5
 than 8 is 9 rest 4, and so consequently vn-
 to the ende. And yf peraduenture we fynde
 this fygure 9 bycause of the byfnesse, we
 shall leue it. And shall fynde at the ende
 9, therfore we shall put at the ende of the
 crosse 0 in signyfenge that there is no-
 thyng aboue 9. And so shall we do in the
 number of 6. and we shall fynde lycke 9
 for the whiche semblably
 we shall put 0. And so is
 the addicion good & well
 made.

The proue.



As touchyng of additiō in broken numbers, ye shall fynde that vnder the tittle of Reduction hereafter.

Of Subtraction.
the thyrde parte.

Subtractiō is a maner of debatynge or subducinge a lesse summe out of a greater: or lyke of lyke shewyng what remaineth.

In subtraction are two numbers, the fyrste is the number abatyd / the seconde, the number abatynge.

Then when ye wyl subtrahe any one number oute of an other. Fyrst ye shall wryte the number to be abatyd, and vnder it directly fygure vnder figure, and place vnder place wrytte the abatoure, and benethe these two summes drawe a lyne: then begyn your subtraction at the fyrst places, and subduce the fygure standynge in the fyrst place of the abatour of the fyrste fygure standynge in the fyrste place of the number to be abatyd: and the rest

rest that remayneth after the abatement
 set it ryght vnder the same place benethe
 the lyne: and so do lyke wyse in the second
 the thyrde, and al other places. And when
 ye haue all done, the number that shall re-
 mayne vnder the lyne, shall be that, that
 remayneth after the subduction of the a-
 batour of the number abatyd. As foꝛ ex-
 ample.

Lent	8	3	4	5	6
Payd	4	1	1	3	1
Reste	4	2	3	2	5

I lent a man 83456
 li. of the whiche he hath
 payed me 41131 li. a-
 gayne. now I desyre to

know how mych remayneth. Then accoꝝ-
 dyng to the rule / fyꝛste I sette the lente
 money / and ryght vnder that I sette the
 repayed monie, fygure vnder fygure, and
 place vnder place: as ye se by the example
 Under bothe these sommes I must draw
 a lyne. Begyn to subtrahe the vnder sum
 out of the vpper, sayenge, 1 out of 6 re-
 mayneth 5, this 5 that remayneth accoꝝ-
 dyng to the rule set vnder the same place
 benethe the lyne: then to the second place
 b.iiii, plucke

plucke 3 out of 5 remayneth 2, set that vnder the lyne: then to the thyrde place, plucke 2 out of 4 remayneth 3, set that vnder the lyne: then to the fourth place, take 1 out of 3 remayneth 2, sette it vnder the lyne: then in the fyfth place, take 4 out of 8 remayneth 4, set that also vnder the lyne, & so thou hast fynished: Then thou shalte vnderstande what which is vnder the lyne is the remainēt of the monie not yet payd,

CAn other example.

8	7	6	6	0	li
6	7	5	6	0	li
<hr/>					
2	0	1	0	0	li

CBegyn at the fyrst place sayenge, 0 out of 0 remayneth nothyng, set the fygure of nothyng vnder the

lyne: then to the seconde place 6 out of 6 remayneth nothyng, set the cypher vnder the lyne: then to the thyrde place 5 out of 6 remayneth 1, set 1 vnder the lyne: then to the. iiii. place 7 out of 7 remayneth nothyng, set the fygure of nothyng vnder the lane, then to the fyfth place, take 6 out of 8 remayneth 2, set that vnder the lyne, and thus thou hast done. Then 20100 remayneth

mayneth yet to be payd.

C Nowe thou shalt noote, that somtyme it chaunfeth that the fygure standyng benethe is greater thenne the fygure standyng aboue hym in the som from whom subduction is made. In this case thou shalt in thy mynde put tennē, to the fygure in the vpper summe, and then subtrahe the nether fygure oute of the same, sette the remanaunt vnder the lyne / and for the same tennē the whiche thou dydest put to y^e vpper fygure to make hym greater, thou shalt adde one to the nexte fygure standyng in the nether summe, and then subtrahe that lykewyse out of the fygure aboue hym, yf the fygure aboue be bygger then the fygure benethe with his addition other elles equall, and that remaineth set it vnder the lyne, as ye dyd in the other example. If the fygure aboue be lesse then the figure benethe, then do to hym as ye dydde to the other befoze: that is to saye adde tennē to hym: and so forth in all other places. where the nether fygure of the abatour is greater then

b.v.

the

the vpper fygure frome whence it sholde
be abatyd : as by this example ye shall
moze clerely perceyue.

¶ An example.

$$\begin{array}{r} 57295490 \\ 48765297 \\ \hline 8530193 \end{array}$$

¶ Begyn your subtrac
tion sayenge, 7 out of 0
that can not be, therfore
fozbycause that 7 stan-

dyng in the nether summe is moze than
the fygure standyng in the fyrst place of
the vpper summe, ye muste adde a tenne,
then deduc your 7 out of 10 and there re-
mayneth 3, then come to the seconde place
and foz the ten that ye borrowed in youre
mynd and addyd it the fygure in the fyrst
place to make it bygge ynough foz the fy-
gure vnder it to be subducyd oute of it,
foz the same tenne I say ye shall put to the
nextte fygure in the nexter place of the ne-
ther summe 1, then saye 9 and 1 is 10, then
subduce this 10 out of the fygure of 9 stan-
dyng aboue it in the vpper summe and
that ye can not, therfore do as ye dyd be-
foze in the fyrste place: putte 10 to the 9 in
your

your mynde sayenge 10 and 9 is 19 , thenne
deduck the 10 beneth out of the 19 aboue, &
there remayneth 9 to be set vnder the ly-
ne: then to the fygure standynge in the
thyrde place in the nether summe, putte 1
for the ten that ye bozowyd in your mynd
the whiche ye addyd to 9 in the seconde
place of the vpper summe to make it grea-
ter: sayenge 1 and 2 is 3 , subtrahe that 3
out of 4 aboue it, remayneth 1 to be sette
vnder the lyne. Then to the fourth place,
take 5 out of 5 , remayneth nothyng, set a
fygure of nothyng vnder the lyne, and
come to the .v. place, take 6 out of 9 remay-
neth 3 to be set vnder the line, so to the .vi.
place, take 7 out of 2 that can not be, ther-
fore put to the same 2 accor dyng to thy
rule 10 and then it is 12 , then subduce 7 out
of 12 remayneth 5 to be set vnder the lyne:
and for the same 10 that thou bozowdeste
in thy mynde to put to the fygure of 2 in
the vpper summe, thou shalte adde 1 to the
fygure standyng in the next farther place
in the nether sum, comyng to y same place
which

whiche is the seventh place sayeng 8 and
the whiche I haue too sette to hym is 9,
then 9 out of 7 that I can not, wherfoze
lykewyse agayne I muste helpe the same
7 with a tenne and then it is 17 out of that
now subtrahe your 9 and remayneth 8 to
be sette vnder the lyne: nowe as ye haue
done befoze in all other places for the 10
here bozowed & adioyned, thenne adde 1 to
the nexte fygure standyng in the seventh
place of the nether number sayenge, 4 & 1
is 5, then subduce this 5 out of the 5 aboue
and remayneth nothyng, wherfoze sette
a fygure of nothyng benethe the lyne, &
so ye haue done.

CHow be it ye shall noote that when ye
haue a cypher to be wrytten in the laste
place of any summe, ye shall not wryte it,
for in the last place it signifyeth nothyng
of it selfe, neyther dothe it augmente the
signyfycation of any of the other.

Cyet one other example wyll we set and
then make an ende of Substraction,

1000081007100

484057480087

516023 527013

Tye shall begynne
sayenge, 7 oute of 0
that can not be, for
ye canne not take 7

oute of nothyng, wherfore as ye haue
done alwayes in the example afoze, putte
tenne to that sypher, and that maketh 10,
then deduc your 7 out of it now, and re=
mayneth 3 to be set vnder the lyne: then
for this ten that ye adde to the fygure in
the fyrst place of your vpper number, set
1 to the fygure standyng in the seconde
and nexte place of the nether number say=
enge 8 and 1 is 9, then 9 out of the sypher
aboue 2 can not be/therfore as ye dyd be=
foze make that 0 10 & then subduce youre
9 out of this addyd 10 remaineth 1 to be
set benethe the lyne: then for this 10 lyke
wyse, that ye bozowyd in the second place
of your vpper number, ye shall sette one
to the nexte fygure standyng in the thyrde
and next place of the nether summe, say=
enge 1 and the 0 is one, thenne take that 1
out of 1 aboue hym, remaineth nothyng,
set a fygure of nothyng benethe the lyne
then

then to the .iiii. place take \bar{y} syphye \circ out of
7 aboute remainnythe 7 styll: to be sette
vnder the lyne: So to the .v. place take 8
out of \circ that ye can not, therefore put 10 to
the syphye and then subduce it and re-
mainnythe 2 sette that vnder the lyne: for
thys ten adde 1 to the nexte fygyre in the
vi. place, whych is 4, then 4 and 1 is 5 and
5 out of \circ that ye can not, then make \circ 10 &
take the 5 out of it remainnythe 5 to be set
vnder: then for the borrowyd ten, likewise
sette to the next fygyre in the .vii. place of
the nether nombze 1 sayeng, one & 7 make
8 & 8 out of 1 \bar{y} can not be, therfore put ten
to that 1 and then 10 and 1 is 11 out of thys
11 deduce your 8 remainnyth 3 to be set vn-
der the lyne: then for thys 10 to the nexte
fygyre in the .viii. of the nether som sett 1
sayeng, 5 & 1 is 6 the 6 out of 8 remainnythe
2 then to the .ix. place, take \circ out of \circ re-
mainnythe also \circ set that vnder the lyne
in the .x. place take 4 out of \circ that can not
be therfore put 10 to that \circ and subduce
your 4 remainnythe 6 the to the fygyre in
the next place whych is the .xi. put 1 sayeng
8 and

8 and 1 is 9, then 9 out of 0, that can not
be therfore put tenne to it, and then sub=
subtrahe your 9 out of 10 remayneth 1, set
it vnder the lyne : for this borrowed tenne
agayne put one to the next fygure which
is 4, sayeng 4 and 1 is 5, 5 out of 0 that can
non be, therfore lykewyse agayne make it
10, and then take 5 out of it, remayueth 5,
then agayne for your borrowed 10 put 1 to
the nexte place : but for bycause there be
no mo places and therfore subtrahe it a=
lone out of the fygure aboue, sayenge, 1
out of 1 remayneth nothyng, therfore no=
thyng is to be set vnder the lyne, not so
moche as a 0, for bycause it is in the laste
place. So then the summe vnder the lyne
is the remayne that remayneth after the
subtractiō of the lower summe out of the
vpper summe.

¶ Here after foloweth the proue
of Subtraction.

The proue of Substractyon.

The proue whether ye haue subtrahyd well or no, ye muste adde the remaine to the nombze payde and yf they twayne added togyther do make the fyrst somme lent compleetelye, then is it well subtrahyd yf not, it is not wel subtrahyd: as by the laste example ye maye well perceue: for by the rule of addytyon: adde 3 to 7 thereof comyngh ¹⁰ set the syphze vnder the lyne and reserue the artycle to the next place: for the accoꝝdyng to the rule of addytyon: and thou shalt se thys twoo sommes added togyther, to come to the fyrste lent somme: and thys of substractyon shalbe suffycient:

Of Multipliyatyon.



Multipliyatiō is a maner of encreasyng or augmentynge one somme by an other. In this feat of multipliyatyon are.iii. nombzes to be notyd the multiplyed nombere. the multiplier and the number that redowndythe of the multipliyatyon of the multiplyed nombere

ber by the multipliar, as in exāple. Mu
tiplie this number 4 by 3 and therof come
12, 4 is the number multiplied: 3 is the
number multiplier: 12 the thyrde number
that redoundyth of the multiplicacion of
one of these number by the other: then for
more experience and redy working in this
kynde of operation ye shall perfectelye
knowe by memoꝛye the multiplicacion of
one dyget by an other, the whiche ye shall
haue here in this table folowynge, of the
whiche one dygette ye shall take for in the
bed of the table, and the other in the lefte
syde of the table.

There after foloweth the
Table.

c. i.

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

By this table ye shal sufficiently lerne
 to multiplye one dygette by an other. As
 for example, yf ye wpll multiplye 9 by 5,
 loke for the 9 at the heed of the table, and
 for 5 the multiplier at the lefte syde of the
 table, then w thy fynger descende downe
 from the place where 9 standeth tyll thou
 come

come befoze the place where the \vars standeth
and there in the same angle, thou shalte
fynde $4\vars$, and that cometh of \vars tymes 9 , &
so do lykewyse of other.

¶ There is also a proper rule foꝛ the mul-
typlication of one dygette by an other, &
it is this, when thou wylte multiplye one
dyget by an other, noote the distaunce of
the greater dyget from 10 and by the same
distaunce multiplye the lesse dygette oꝛ e-
quall, and that that procedith of it deduct
out of that article whome the lesse number
doth denominate, and the rest is it that ye
seake foꝛ, as foꝛ example: yf ye wyl mul-
typlye 7 by 5 , fyyste se the dystaunce be-
twene 7 which is the greater number and
 10 , and that is 3 , by this 3 multiplye 5 , and
that is 15 then subduce this 15 out of the ar-
tycle that \vars the lesse number doth denomi-
nate, whiche is 50 , then remayneth 35 , that
is \vars tymes 7 : so lykewyse shall ye doo yf
the multiplyar and the multiplyed be
lyke. Now be it moost ready it is to knowe
without boke very perfyte the multi-
plication of euery dyget one in an other.

c.ii. Now

Now when ye wyll multiply any one
number the one by the other. Fyſte write
fayre your number to be multiplied, and
vnder it the multiplicatour benethe both
theſe ſummes, ye ſhal drawe a lyne. Then
ſhall ye coſpyder whether your multiplier
be a digette or article, other elles compoſt
number. If it be dyget number ye ſhall
begynne to multiply by the dyget the fy-
gure or dygette ſtandynge in the fyſte
place of the number to be multiplied, and
that that comineth of it, if it be but a dy-
gette, ſet it vnder the lyne right vnder the
ſame place, and then procede forther to the
nexte place, and multiply the fygure ſtan-
dynge in that place by the ſame multipli-
er, and that that redowndyth of it, yf it be
a dyget ſette it lykewyſe vnder the lyne
ryghte vnder the ſame place, and ſoo do
lykewyſe in euery place folowynge, vnto
ſuche tyme as all the fygures ſtandynge
in euery place, be multiplied: then that
the whiche ſhalbe founde vnder the lyne
is the ſomme comynge of the multiply-
cation of this two nōbers, the one by the
other

other: as by example ye shall the better perceyue

$$\begin{array}{r} 2 \quad 3 \quad 1 \quad 4 \\ \hline 4 \quad 6 \quad 2 \quad 8 \end{array}$$

If ye wyll multiplye this sum 2314 by this 2 , ye shall sette your fygurs after this sorte, as

ye se them. Begyn your multiplication sayenge 2 tymes 4 is 8 , sette that 8 vnder the lyne, then come to the nexte place and saye, 2 tymes 1 is 2 , set it vnder the lyne then to the thyrde place, 2 tymes 3 is 6 , set vnder the lyne, so to the fourth place, 2 tymes 2 is 4 , set that vnder the lyne also, & then thou hast done: so that this number 4628 vnder the lyne, is it that commeth of the multiplication of this summe 2314 by this number 2 . But yf it be so that in the multiplication of any fygure in the number multiplicable, by the multipliar that it whiche redoundyth of it be article number, then ye shall set a cypher beneth the lyne right vnder the same place where the multiplicacion is, and reserue the article to be added to the number that pro-

cedyth of the multiplycatiō of the fygure
in the nexte place by the foresayde multiply-
plyar, the whiche lykewyse yf it amounte
to an article do lyke wyse as I byd yow to
do in the fyrste place : but yf it be number
compost, then shall ye set the dygette un-
der the same place beneth the lyne, and re-
serue the artycle to be addyd lykewyse as
is befoze sayde of article nōber, as in this
example.

$$\begin{array}{r} 8141642 \\ \hline 40708210 \end{array}$$

Cyf ye wyl multiply this nōber 8141642 by this fygure 5. Be-
gyn at the fyrste place

sayenge 5 tymes 2 is 10, nowe forbycause
that this number is artycle, ye shall accor-
dyng to the rule befoze, sette the cypher
vnder the lyne, and reserue the article 1 to
be addyd to the number that pcedeth of
the multiplication of the nexte fygure
standynge in the nexte place of the summe
multiplycable, by the multiplyer : so then
come to the nexte place sayenge, 5 tymes 4
is 20, to this 20 adde 1 for the artycle that ye
reseruyd, and that maketh 21, therfoze by-
cause

cause that this is a compost nūber ther-
foze sette the dygette vnder the lyne be-
neth the same place, and reserue the arti-
cle to the nexte place: then come to the.iii.
place sayeng 5 tymes 6 is 30, to this adde
the article 2 which ye reseruyd in the place
nexte goynge befoze, and then it is 32 sette
the dygette vnder the lyne as ye dyd be-
foze reseruyng the article to the next place
then come to the.iiii. place sayeng, 5 tymes
1 is 5 to this adde the article reseruyd, whi-
che is 3 and that maketh 8, set this diget
nōber vnder the lyne, and then come to the
v. place sayenge, 5 tymes 4 is 20, nowe for
bycause that this nomber is artycle set o
vnder that place benethe the lyne reser-
uyng the article 2 to be addyd vnto the
nexte palce: then comine to the. vi. place
sayenge, 5 tymes 1 is 5, to this adde the ar-
ticle 2 reseruyd and then it is 7, set it vn-
der the lyne: then to the. vii. place, sayeng,
5 tymes 8 is 40, now forbycause it is an ar-
ticle nomber ye shall sette a sypher vns
der the lyne, and reserue the artycle 4
too the nexte place, and for as moche

C.iii.

as

as there is no mo places, ye shal sette this
+ vnder the lyne nexte vnto the o that ye
sette downe laste, and then ye haue done.
¶ When that your multipliat is com-
poste oꝝ article, then shall ye take the fyꝛst
fygure of your multipliyer, and by hym
shall ye multiplie all the fygures of the
multipliable numbers, settinge alwaye
that that amountyd of it benethe the lyne
as ye dyd befoze. And when ye haue mul-
tiplied the number multipliable by the
fyꝛste fygure of the multipliat: then mul-
tiplie it agayne by the seconde fygure of
the multipliyer, settinge euer moze the fyꝛst
fygure of the nomber multipliyate, dy-
rectely vnder the fygure multipliyatour,
in what place soo euer he stande: and the
number multipliyable is multiplied by
al the fygures of the multiplicatour, then
make a stryke vnder them all, addyng al
the numbers multipliyate togyther as
they stande, and that whiche procedeth of
that addition is the number multipliy-
able nowe multiplied by the hoole number
multipliyatour, as by this example ye
shall

Shall playnely perceyue.

			2	3	4	5
			1	2	3	4
			<hr/>			
			9	3	8	0
		7	0	3	5	
	4	6	9	•		
2	3	4	5			
<hr/>						
2	8	9	3	7	3	0

If ye wyl multiply this number 2345 by this nōber 1234, set them fyrste as ye see here 2, vnder them drawe a

lyne; then begyn with the fyrste fygure of the multiplicatour, whiche is 4, and by hym fyrste accoꝝdyng to the rule multiplye all the multiplicable nōber thꝛoughout, sayenge 4 tymes 5 is 20, setet the cypher vnder the lyne reseruyng the artycle 2 to the nexte place/ then to the second place, 4 tymes 4 is 16, to that put youre reseruyd artycle 2 and it is 18, set the dygette 8 vnder the lyne, reseruyng the artycle 1: then to the thyrde place, 4 tymes 3 is 12 and 1 reseruyd from the place before that is 13, set the dyget 3 vnder the lyne, reseruyng the artycle 1, then to the. iiii. place, 4 tymes 2 is 8 and 1 reseruyd is 9,

c.v. set

set that dygette 9 vnder the lyne, and soo
 haste thou multiplyed this number mul-
 typlicable by the fyrst fygure of the mul-
 typlicatour. Now then accoꝝdunge to the
 rule afoze, multiplye the multiplycable
 number by the seconde fygure of the mul-
 typlicatour sayenge, 3 tymes 5 is 15 sette
 the dyget 5 vnder the lyne, accoꝝdunge to
 the rule, whiche byddeth to sette euermoze
 the fyrst fygure of the number multiply-
 cate vnder the place where y^e fygure mul-
 typlicatour dothe stande: as here nowe
 thou multipliest the multiplycable by the
 second fygure of the multiplicatour, whi-
 is 3, than say 3 tymes 5 is 15 set this dyget
 5 vnder the lyne, and beneth the fyrst nom-
 ber multiplycate ryght vnder the fygure
 multiplycatour, as thou seest in the ex-
 ample, and reserue the artycle 1: then to
 the seconde place of the multiplycable, 3
 tymes 4 is 12, and 1 that is reseruyd is 13
 set the dyget 3 vnder the lyne, as ye se in
 the example, & reserue the artycle 1, and so
 to the. iiii. place 3 tymes 3 is 9 and 1 reser-
 uyd is 10, set a sypher vnder the lyne & re-
 serue

serue the article 1 : so to the .iiii. place say
enge 2 tymes 3 is 6 and 1 reseruyd is 7 set it
vnder the lyne, thus haue ye done youre
multiplication by the seconde fygure of
the multiplicatour 3. Then take the .iii. fy-
gure of the multiplicatour which is 2, and
multiply also all the nōbers multiplicable
by hym sayenge 2 tymes 5 is 10 set the sy-
pher beneth the lyne right vnder the place
where this fygure 2 the multiplicato^r stan-
dyth, as ye se in the example : and reserue
the artycle 1, then to the seconde place 2 ty-
mes 4 is 8, and 1 reseruyd is 9, set that 9 vn-
der the lyne: then to the .iii. place, 2 tymes
3 is 6, set that vnder the lyne: so to the .iiii.
place sayeng 2 tymes 2 is 4 set that 4 vn-
der the line. Now begyn to multiply with
the fourth and laste fygure of the multy-
plicatour, sayenge 1 tymes 5 is 5 sette the 5
vnder the lyne as I warened ye before,
and as ye se in the example: then to the se-
conde place 1 tymes 4 is 4, set that 4 vnder
the line, then 1 tymes 3 is 3, set that 3 vnder
the lyne, then 1 tymes 2 is 2 set that 2 vnder
the lyne: & ye haue done your multiplyca-
tion

tyon : then muste ye adde accoꝝdꝝnge to
 your rule afoꝝe all this syngle multiplyed
 number togyther, and that the whiche cō-
 meth of the addition is the number that
 cōmeth of the multiplicacion of this nō-
 ber 2345 multiplycable by the number
 1234, multiplicatour. Then come to the
 fyꝛste place, and se what is there, & there
 ye shall fynde a 0, set it vnder the lyne, and
 so to the seconde place there ye shall fynde
 5 and 8 which is 13, set the dygette 3 vnder
 the lyne reseruyng the artycle 1 to be ad-
 dyd to the next place: then come to the.iii.
 place, there is 0. 3 and 3 whiche is 6 to that
 adde the reseruyd 1 and that is 7, set that
 7 vnder the lyne/ nowe to the.iiii. place,
 5. 9. 0. and 9, maketh 23, sette the 3 vnder
 the lyne, reserue the article 2, so to the.v.
 place 4. 6. and 7, is 17, to that adde the re-
 seruyd 2, whiche maketh 19, sette the 9 vn-
 der the lyne, and kepe the article 1 in mynd
 then to the.vi. place 3 and 4 is 7, and 1 re-
 serued is 9, set it vnder the lyne / then too
 the.vii. place, there fynde ye but 2, where-
 foꝝe set it vnder the lyne, and then haue ye
 Done

done: so that this summe vnder the lyne
2893730 is the hole number multyplicate

Another example of multiplication.

				A	6	4	2	6	0	•	3					
				B	5	0	2	0	0	0						
					<hr/>											
					o	o	o	o	o	o	o					
					o	o	o	o	o	o	•					
					o	o	o	o	o	•						
				I	2	8	5	2	0	0	6					
				o	o	o	o	o	o	o						
				3	2	1	3	0	0	1	5					
				<hr/>												
C				3	2	2	5	8	5	3	5	0	6	0	0	0

Tyour fygures sette after this sorte, **A** is the multiplycable number. **B** is the nomber multiplicatour. **C** is the nomber multiplycate, which commeth of the addition of all the seuerall nombres togyther standyng between the lynes. Begyn then your worke, takynge the fyyste fygure of **B**, the multiplicatour which is 6. & by hym multiply all the fygures of **A** the multiplycable:

ble and that that procedeth of it set vnder
 the lyne as ye se: and so to the seconde fy-
 gure of the multiplicatour whiche is also
 o multiplie all the fygures of A by it lyke
 wyse, and set that whiche cometh of it vn-
 der the lyne, ryght vnder the second place
 where the multiplicant fygure standyth:
 then to the thyrde fygure whiche also is o
 multiplie all the multiplicable number
 A, and set that which cometh of it ryghte
 vnder the thyrde place benethe the lyne, as
 ye se playne in your exāple: for of the mul-
 tiplycatiō euermore by syphers commeth
 nothyng but cyphers . Now to the, iiii.
 place of B, the multiplicatour, there shall
 ye fynde the fygure 2, multiply then all A
 the multiplycable number by this fygure
 2 sayenge 2 tymes 3 is 6 set that 6 vnder the
 lyne ryght vnder the place where the mul-
 tiplycatour 2 standyth: as it apperith in
 your example: then to the seconde place,
 2 tymes o is nothyng, sette that o vnder
 the lyne nexte the afoze sayde 6, and so to
 the thyrde place, 2 tymes o is nothyng,
 sette the fygure of nothyng downe vn-
 der

der the lyne, and so to the fourthe place, 2
tymes 6 is 12 sette the dygette 2 vnder the
lyne and reserue the artycle 1 to the nexte
place: then come to the. v. place, 2 tymes
2 is 4 and 1 that I reseruyd is 5, set that 5
vnder the lyne: nowe come to the syrthe
place, sayenge 2 tymes 4 is 8 sette that 8
vnder the lyne: so to the seuenthe place, 2
tymes 6 is 12, sette the dygette 2 beneth the
lyne, and reserue the artycle 1 to be sette in
the nexte and laste place as ye se in the ex-
ample. Thus haue ye multiplyed A the
multiplycable by. iiii. fygyres of B the
multiplycatour: therfore nowe take o the
v. fygyre of the multiplycatour: and by it
also multiplye all the fygyres of A, the
multiplycable, and thereof shall come all
syphers to be sett vnder the lyne, as ye see
here in the copye. Then to the syrthe fy-
gyre of B, the multiplycatour whi-
che is 5, by this 5 also multiplye all the
fygyres of A the multiplycable sayenge
5 tymes 3 is 15 sette that 5 beneth the ly-
ne ryghte vnder the syrthe place where 5
the

the multiplycato^r standyth, as is to se in
the coople: and reserue the article 1 to the
nexte place: then come to the seconde place
and saye 5 tymes 0 is nothyng, sette the 1
whiche ye reserued in your mynde vnder
the lyne: and so to the thyrde place sayeng
5 tymes 0 is nothyng, set the 0 vnder the
lyne: then to the fourthe place sayenge, 5
tymes 6 is 30, sette the cypher 0 vnder the
lyne, reseruyng the artycle 3 vnto the next
place: then come to the. v. place sayenge 5
tymes 2 is 10, and 3 that I reseruyd is 13
set the dygete 3 vnder the lyne, and reserue
the article 1 to be addyd to the nexte place:
so to the. vi. place sayenge 5 tymes 4 is 20
and 1 reserued is 21 set 1 the dygette vnder
the lyne reseruyng 2 the artycle to the next
place: then to the. vii. and laste place say-
enge 5 tymes 6 is 30 and 2 that was reser-
ued is 32 set the dygette vnder the lyne &
reserue 3 the article to be set in the nexte &
laste place benethe the lyne as ye maye se
in the example: & so is all finysshed: Then
vnder all these particular summes drawe
a streke, and adde all them togyther, set-
tyng

tyng euer that whiche cōm, & the ad-
 dyceon, vnder the lyne, as is in the exam-
 ple: the whiche shall amounte vnto this
 summe. 3225853506000, & this is it that
 cometh of the multiplicacyon of the sum
 A, by the sum B.

¶ Certayne examples of multiplyca-
 cyon in the whiche ye maye exercyse your
 selfe to be the moze practyzed in it.

A 3452367

¶ To multiply by, B 8892539

31071503

80357108

87261835

6904734

1071308

27618936

27618929

Sum. 30700306189814

64970

7432

To mul. 13

To mul. 324

194910

29728

64970

14864

Sum. 844610

22296

Sum. 2407908

D.i.

As fo multiplicacyon by squares
is nother worth the wytyng noꝝ the rea-
dyng. And where as in other copies is
set Duplacyon, triplacyon, and quadru-
placyon, all that is superfluous, foꝝ so
much as it is contayned vnder the kynde
of multiplyeacyon: and they that are ex-
perte in this feete, maye ryghte well per-
ceave it.

The pꝛofe of multiplycacion.

The pꝛofe of multiplycacyon may be
by two meanes. By the subducing
out of all the 9: and the second way
is by particyon. As concernyng the fyꝛste
waye: ye shall fyꝛste make a crosse, then
beholde the multiplicable number, and
subduce out of it all the nyues, and that
that remayneth not able to make 9 set it
at the vpper ende of the crosse: then come
to the multiplcator, and do lyke wyse in
hym, and that which remayneth all the 9
beyng subducyd, set it at the vnder parte
of the crosse: then multiplye the fyꝛgure
standyng in the vpper parte of the crosse
by the fyꝛgure standyng in the nether part

of the crosse, and out of the same that cometh of it take 9 as ofte as ye can: and that that remaineth not able to make 9, set it at the ryght syde of the crosse: then come to the totall sum multiplycate, and subduce all the 9 out of hym lykewyse, & that whiche remaineth not able to make 9, set it at the lefte syde of the crosse, and if it be lyke the fygure standynge at the ryghte syde of the crosse, then is it well, othertwyle it is not well.

¶ An example.

A 7 9 6 3

B 1 8 5 2

1 5 9 2 6

3 9 8 1 5

6 3 7 0 4

7 9 6 3

C 1 4 7 4 7 + 7 6



¶ To knowe whether the sum C, be the very sum whiche cometh of the multiplycation of A, by B. then fyrste subduce all the 9 that ye fynde in the multiplycable A, and the rest set it at the vpper ende of
D.ii. the

the crosse, whiche ye shall fynde to be 7 :
Then to p multiplicator B . Do lyke wyse
and se what remaineth, and there remaineth
also 7, set p also of the nether ende
of the crosse: then multiply this 7 standynge
in the upper ende by 7 standynge
in the nether ende: and therof cometh 49
when thou hast take all the 9 out of this
49 there wyll remaine 4, the which thou
shalte set at the ryghte syde of the crosse:
Then come to C , the totall sum of p mul-
tiplicacyō, & there lyke wyse take out al p
9 that ye fynde there: and the reste not suf-
ficient to make 9 set it at the lefte syde of
the crosse, the whiche thou shalt fynde to
be 4, and for bycause that this 4 to be set
at the left syde is lyke the figure standynge
in the ryghte syde (for that is 4 also) ther-
fore thys multiplication is good and wel
made: & so lyke wyse in all other exāples.
¶ The pꝛofe by Partitiō is to diuide the
totall sūme C by the multiplicator B and
yf p quociēt be iust A than is it wel mul-
tiplied other els not. But thys waye can
ye not pꝛactise, vnto such tyme as ye haue

leat

learned the feate of Particion.

Of particyon the fourth
kynde of Algorisme.

Particyon is a parte of algorisme, by
the whiche ye maye easely diuide
any greater sum by a lesse or equall
shewyng how often tymes the diuisor is
contayned in the number diuysible.

In this feate of particyon be. iiii. nom
bers to be noted: the number diuysible,
the number diuisor, the quotient, and the
remainye yf there be any.

Before you come to particyon it shall
be very nedefull and necessarie for you,
ryght persyte y to knowe the table of mul
tiplycacyon of dygettes: whiche is set in
the chapter of multiplycacyō: For vnlesse
that ye know that persytely ye shal stycke
greatly not only in multiplycacyon, but
also in this feate of particyon, and that
exactly had in memoꝛye, the rest shall be
farre easer. As for example. yf ye wyl
knowe how often tymes 7 is contayned
in 68 ymagyn by 7 by that this 7 shulde

D.iii.

be containned 8 tymes: then yf ye knowe
without the booke perfytlpe the foresayd
table ye shall se that 8 tymes 7 is but 56
ergo 7 is containned moze then 8 tymes
in 68, ymagen then and suppose it to be
9 tymes in 68, then by the table se what
9 tymes 7 is, and thou shalt se that it is
63 wherfoze thou mayst conclude that in
68, 7 is containned 9 tymes and 4 ouer.

	0	0	0	2	0
Ans.	9	7	7	7	7
	7	7	7	7	7

						quotient.
						15077
						3 Diuisor

The



proue.

To diuylde this number 41231 by 3
the 3 is diuifoz. Fyft ye shall fet downe
your numbers to be diuylde, and at the
ende of that number on the ryghte hande
ye shall make a ftreke, wherin ye shall fet
your quocient, and then fet downe your
Diui

diuifoz which is 3 vnder the fygure that
 standeth at the vttermoſt ende at the lyft
 hand that is vnder 4, and than ſay how
 many tymes 3 maye I haue in 4 ones 3
 and 1 remayneth ouer, ſet 1 within the
 ſtryke and that 1 that remayneth ſet ouer
 4 then ſtryke the diuiſoz 3 with a daſhe
 of your pen, and ſet the diuifoz 3 vnder
 the fygure 5, then ioyne the artycle 1 to
 the dygget 5, and it is 15, then ſaye howe
 many tymes 3 maye I haue in 15, 5 ty=
 mes 3, ſet that 5 in the ſtryke nexte to the
 fygure 1 and cloſe vp the artycle 1 and
 the dygget 5 with a cyfer 0 ouer eyther
 of them, and then ſtryke the diuifoz 3 w
 a daſhe of your pen, and ſet the diuiſoz 3
 vnder the thyrde fygure 2, and ſe howe
 many tymes 3 ye may haue out of 2 none
 therfore ſet downe a cyfer 0 within the
 ſtryke nexte to the fygure 5 & ſtryke out
 your diuifoz with a daſhe of your pen,
 and ſet the diuiſoz 3 vnder the fourth fy
 gure 3 then ioyne the artycle 2 to 5 dyg=
 get 3 and that maketh 11, than ſe howe
 many tymes 3 ye maye haue in 11, 7 ty=
 mes

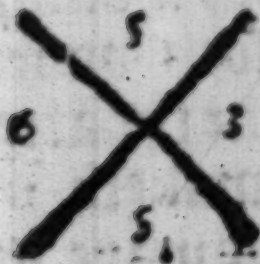
Diui. mes

mes, and 2 remayneth, set that 7. Within
the stryke nexte to the cyfer, and the 2
remayneth set ouer the fourth fygure 3 &
close vp the article 2 with a cyfer 0; then
stryke out the diuysor and set it vnder the
fyfste fygure 1 at the ryghte hande, then
ioyne the article 2 to the dygget 1 and it
maketh 21, than se howe many tymes 3
ye may haue in 21, 7 tymes and nothyng
remayneth, than set the 7 within y stryke
and close the article 2 with a cyfer 0 ouer
eche of them and stryke out the diuysor
with a dashe of your pen, & so the thyrde
parte of 45331 is 15077.

¶ The seconde example.

	0	4	0		} 6 diuysor. quotient. 190 $\frac{5}{6}$ parte.
No.	2	3	4	3	
	0	0	0		

The



proue.

To dvyde this number 2345 by 6,
the 6 is the diuysor, begyn your diuysy-
on at the lyfte hande, as is sayde in the
fyrst example, and set your diuysor vnder
the thyrde fygure 3, for ye maye not haue
6 out of 3, & therfore saye howe many ty-
mes 6 may ye haue in 3, 3 and 3 remay-
neth, set the 3 within the stryke, & the dyg-
get 3 that remayneth set it ouer y second
fygure, and close the artycle 3 with a cy-
fer 0 ouer it, and then stryke out the di-
uisor with a dashe of your pen, & set your
diuysor agayne vnder the thyrde fygure
4, and then ioyne the article 3 to the dyg-
get 4, & it is 34, then se how many tymes
6 ye may haue in 34, 5 and nothyng re-
mayneth, set the 5 within the stryke and
close vp the article 3 and the digget 4 w
a cyfer 0 ouer eyther of them, and stryke
out the diuysor with a dashe of your pen,
and set the diuysor vnder the fygure 5 &
say how many tymes 6 may ye haue out
of 5, no tymes, therfore set downe a cyfer
0 within the stryke, and let the 5 stande
& stryke out the diuysor with a dashe of
your

your pen, and so the 6 parte of 2145 is
 390, and the 5 that remayneth set at the
 ende of the quocient in this maner. $\frac{5}{6}$
 So the quocient is 390 $\frac{5}{6}$

To dyvide by 2 or 3 fygures, or as
 many as pleaseth you.

Fyrst set downe your nomber to be di-
 vided and your diuisor vnder it, begyn-
 nyng at the lefte syde at suche a place as
 ye may take the laste fygure of your de-
 visor in the laste ende, and then se howe
 ofte ye may haue that fygure in y^e fygure
 aboue it, and that set aparte for your quo-
 cient, with the whiche quocient ye shall
 multiply euery fygure by it selfe of your
 diuisor and that that cometh of the mul-
 typlicacyon, ye shall abate of the fygure
 ryght ouer it, puttyng out that other fy-
 gure, and set y^e rest aboue it, and so worke
 with euery fygure by it selfe throughout
 the diuisor. Then renewe your diuisor 1
 fygure forwarde towarde your ryghte
 hande, as before is reherfed, and so con-
 tynue your worke folowynge to the fyrste
 fygure

30.

o	+	+	<div style="display: inline-block; vertical-align: middle;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">7</div> <div style="border-left: 1px solid black; padding-left: 5px;"> quocient. 343 $\frac{7}{12}$ 12 diuysor. </div> </div> </div>
+	+	+	
+	+	+	
+	+	+	
+	+	+	
+	+	+	

ache



prone.

Thyſte ſet downe this number 4123, &
diuſde it by your dnyſſoꝝ 12, begyn your
woꝝke at youre lyfte hande, ſettyng the
arty=

artycle 1 of your diuysor vnder 4, and þ
dygget 2 vnder the thyrde fygure 1, and
than se how many tymes the artycle 1 of
your diuysor ye maye haue in the 4 ouer
it, ye wolde saye 4 tymes 1, but that can
not be bycause there ye maye not haue þ
quocient 4 multiplied with the dygget 2
of your diuysor, for therof cometh 8, and
then that 8 ye may not take out of 1 ouer
the digget 2. Therfore say agayne howe
many tymes 1 maye ye haue in 4, 3 ty-
mes and 1 remayneth, set the 3 within the
stryke for the quocient, & the 1 that remay-
neth set ouer 4, & stryke out the article 1
of your diuysor with your pen. Then mul-
typlye the quocient 3 with the dygget 2 of
your diuysor, and therof cometh 6. Then
ioyne the article 1 that remayneth, & the
digget 1, & it is 11 therout take 6 & there
remayneth 5, set þ 5 ouer þ thyrde fygure
1, & close vp the article 1 ouer 4 with a fy-
gure ouer it, and stryke out þ dygget 2 of
your diuysor w your pen. Then renewe
your diuysor agayne but one fygure for-
warde, as thus: set the article 1 vnder the
thyrde

thynde fygure 1 in p No. and the digget 2
vnder the second figure 2, & there se how
many tymes 1 I may haue in 5 that re-
mayneth, 4 tymes, & yet there remaineth
1 which must be set ouer 5, and stryke out
the article 1 with your pen. Then multi-
ply the digget 2 of your diuysor with the
quocient 4 & it is 8, then ioyne the arti-
cle 1 that remaineth, and the dygget 2 in
No. together & it is 12, then take p 8 out
of the 12 & there remaineth 4, set that 4
ouer the seconde fygure 2 in the No. and
close vp the article 1 with a cyfer 0 ouer
it and stryke out the digget 2 of your di-
uysor with your pen. Then renewe your
diuysor agayne as before is sayde, & set p
article 1 vnder the seconde fygure No.
and then se how many tymes 1 I haue in
4 that remaineth 3 tymes and 1 remain-
eth, set that 3 within the stryke for p quo-
cient, & the 1 that remaineth set ouer the
4, and stryke out the article 1 of your di-
uysor with your pen. Then multiply the
quocient 3 with the digget 2 of your di-
uysor, and it is 6, then ioyne the article 1
that

that remayneth, and the dygget 3 in No.
 and it is 13. Then take 6 out of 13 and
 there remayneth 7, set þ 7 ouer the dyg:
 get 3 in the No. and close vp the actycle
 with a cyfer 0 ouer it, and stryke out the
 dygget 2 of your diuysor, and then the 11
 parte of 4123 is for the quocient 343, &
 the 7 that remayneth shall be set at the
 ende of your quocient, as thus $\frac{7}{12}$

Re. 1	+	2	1
Dy. 6	7	8	8
	1	3	1
	6	6	6
	4	8	2

Re. 111	1	
Dy. 200	4	5
	2	1
	2	2

¶ Ye shall note that in these two exam-
 ples the quocient standeth in the inyddes
 betwyxte the two lynes, and the number
 to be dyuved standeth nexte aboue the
 vppermoste lyne, and the dyuysor stan-
 deth

20. Deth nexte vnder the nether yne. But
 and than ye must marke that there be two dy-
 uysors, one is called the diuysor currant,
 because it is alwayes remouable toward
 the ryght hande in the operacyon, and al-
 so it is stryken out, and this diuysor stan-
 deth alway vnder the nether lyne of the
 quocient. The other diuysor is called the
 diuysor permanent, for he is not remouyd
 nor blottyd as the other is, but standeth
 alwaye permanent on the lyfte hande di-
 rectely agaynste the nomber that is to be
 diuided. And iust ouer hym there stādeth
 the remayne of the whole nomber, whiche
 remayne can not be diuysed by the diuys-
 or, and therfore it is set ouer the diuysor
 permanent with a stryke betwyxte: as ye
 maye se in the fyrste ensample, where 1 is
 remaynyng, and 6 is the diuysor.

	4	2		2				
8	2	4	0	5	0	9	2	3
0	8	7	7	0	2	3	0	4
5	4	4	4	4	4	4	4	4

¶ fo, as much as in this ensample we
can

can not tale 4 which is the diuifor, out
 of 3, therfore we shall set 4 vnder 3 & say
 how many tymes 4 haue pen 3, ye ha-
 ue 8 tymes 4, and there resteth 3, ye shall
 set the 8 betwixte the two lynes, and the
 3 aboue 3, then efface the 8 & the 4, then
 we shall set 4 vnder 6 & saye, in 30 how
 many tymes 4, 7 tymes, set 7 betwene
 the lynes at the ryght syde by the 8, and
 there resteth 2, whiche we shall set aboue
 6, and efface 6, than set 4 vnder 8, and
 say in 28 how many tymes 4, 7, & there
 resteth nothyng, set 7 betwene the lynes
 by the 7, than set 4 vnder 0 & saye how
 many tymes 4 in 0, there is none, ther-
 fore set 0 betwene the lynes, than shall we
 saye in 9 how many tymes 4, 2 tymes,
 set 2 betwene the lynes, and there resteth
 1 which we shall set aboue 9 and efface 9,
 than in 12 how many tymes 4, 3 tymes,
 set than 3 betwene the lynes by 2, & there
 resteth nothyng. Than in 3 that is the
 laste fygure howe many tymes 4, no ty-
 mes, therfore at the ende of the fygure ye
 shall set the 3 thus 3 and it is made.

	3 2	8	
A	3 5 0 8 0 9 2 3	3	
C	8 7 7 0 2 3	40	
B	4 0 0 0 0 0 0		
	4 4 4 4 4		

Example whan the diuysor is an arty-
cle, it behoueth to do semblably, in say-
enge, in 3 how many tymes 4, no tymes
and therfore we shall set 4 vnder 5, and
• vnder 0, and saye how many tymes 4
in 35, 8 tymes, set 8 betwene the two ly-
nes vnder 5, and there resteth 3 whiche
we shall set ouer 5. Then set the 3 that
standeth ouer 5 and the 0 together and
that is 30, than say howe many tymes 4
in 30, 7 and alwayes so to the ende. And
than we shall set 4 vnder 2, and 0 vnder
3, and saye in 12 in takynge the 1 that
shall rest of the summe afoze and shall be
aboue 9, and the 2 that is after 9, how
many tymes 4, 3 tymes 4, and then set
3 in the nomber of C, agaynste 2, & than
shall we cease, for there remaineth al-
lonely 3 to be parted by 40, now we shall

E.I. not

Reeth 14, of the whiche 14 we shall set 1
ouer 3, and efface 3, and 4 aboue 0 and
efface 0, than shall we set the diuisor som
what forward, the 4 agaynst 0, that shall
be effaced, and 2 agaynst 8, and saye in
14 demonstryng 1 that shall be aboue 3
and 4 aboue 0 how many tymes 4, 3 ty
mes, set the 3 betwene the lynes in the nu
ber of C, and there resteth 2 whiche we
shall set ouer 4, and efface 4, than shall
we saye agayne in multiplyenge the 3 of
C, by the seconde fygure of B, that is 2,
we shall saye than 2 tymes 3 ben 6, and
of 8 that is agaynst it we shall abate 6,
and there shall reste 2, whiche we shall set
ouer 8, and efface 8, and alwayes so vn
to the ende, & when we come to the 2 laste
fygurs of A, & that we wold diuylde them
by 42, we maye not, for the fyyste that is
but 2 shall be effaced with 1 that standeth
aboue 5 and bycause that we maye take
there nothinge we shall set 0 agaynst 2
of A, in the nomber of C, betwene the ly
nes, and so it is done, & there shall reste 3
to be diuylde by 42, and that 3 shall be

2.ii. set

In this ensample in the number of B,
 that is the diuysor, be many fygurs, and
 therfore we shall saye, in 3 of A, how ma-
 ny tymes 2 of B, 1 tyme, set that 1 vpon
 C, and 1 that remayneth of 3, ouer 3, &
 than shall we come to the 4 of B and to
 1 of C, and multiply them in sayenge, 1
 tymes 4 is 4, whiche 4 we shall abate
 of the number of A, in takynge 1 aboue
 3 and 5 after 3, that shalbe worth 15 and
 therof we shall abate 4 and there resteth
 11, and for the more shorrest way of 5 on-
 ly abate 4, and set the 1 that remayneth
 aboue 5, & there resteth alwayes 11, then
 shall we come to the 3 of B, and to 1 of
 C, and make all onely the multiplicacyō
 in sayenge 1 tymes 3 ben 3, than of 10
 abate 3 in demonstrynge 1 ouer 5 and 0
 after, and then there resteth 7, which we
 shall set ouer 0, then bycause of the cy-
 fer 0 maye nothyng come, we shall leue
 it, and go to the nexte fygure and saye 1
 tymes 5 that is at the last ende of B ben
 5 but in so much that we maye nothyng
 abate of 0 that is agaynst it in the num-

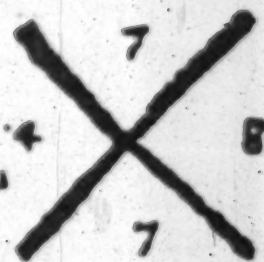
ber \mathcal{A} , we shall bozowe of the fygure afoze
that is \mathcal{s} onely one and efface the \mathcal{s} , and
set the $\mathcal{7}$ aboue the \mathcal{s} , and the $\mathcal{1}$ that we
shall holde shall be woꝛth $\mathcal{10}$ to the regarde
of the number that we be in, then we shall
saye of $\mathcal{10}$ abate \mathcal{s} there resteth \mathcal{s} whiche
we shall set aboue \circ , then shall we auaũce
our partetour cōsequētly vnder the other
fygurs folowynge, that is to saye tyll the
laste of \mathcal{B} , be set vnder the laste of \mathcal{A} , and
then ye maye not auaunce them any fur-
ther bycause ye be come to the endes of
bothe numbers.

The pꝛoue of diuysyon or particpon is
made in this maner: ye shall fyrst make a
crosse, as ye dyd befoze in multiplycacyon
and abate the $\mathcal{9}$ of the particpon, and set
the reste at the lyfte ende of the crosse sem-
blably of \mathcal{p} the nūber that is betwyte
the two lynes, and set the rest at the ryght
ende of the same crosse, and yf there be no-
thyngge reste set \circ . Then multiply \mathcal{p} two
nūbers of fygurs, for they be dyggettes
that one by that other, & therof abate all
the $\mathcal{9}$, yf there be nothyngge in the fyrste
num-

number, or yf ye may not diuylde it toyne
it with the same that shall come therof.
And so the rest that maye not make 9 set
it at the ende vnder the crosse. Than shall
we come to the fyrst number & semblably
do away the 9 therof, & set the rest aboue
the crosse, & yf that aboue & that beneth be
lyke, the particyon is good, or yf not, it is
fals. And for to vnderstande it better we
make pꝛoues by þ ensamples aforesayde.

¶ For the fyrste we shall take the parte=
tour that is 4 and set it at the lyfte syde
of the crosse, than shall we abate the 9 of
the thyrde number, &

there reste 8 whiche 8
we shall sette at the pꝛoue
ryght ende of þ crosse
and multiply it by 4
and therof cometh 32



wherof resteth 5 then adiouste them with
the 2 farthynges that we myghte not de
uylde, and they shall make 7, the which 7
we shall set vnder the crosse, than shall we
abate the 9 of the fyrste number that ben
the farthynges, and there shall reste 7

c.iiii. which

which 7 we shall set at the vpper ende of the crosse, and so ben the two endes lyke and it is well made.

¶ Reduction.

Reduction is a kynde of Algorisme by the which ye be taught to reduce numbers of lesse denomination or value to numbers of more denominacyō or value: or yf the case requyre it, numbers of great denominacyon to the numbers of lesse value. Example of the fy^{yste}. 20. li. 63. s. 44. d. 10. far. Thus reduce the farthynges to pens, & the pens to shelynges, and the shelynges to poundes: and then this sum is 23 li. 6 s. 10 d. & 2 far. so haue you reduced the lesse summe to y more. Example to reduce the more to the lesse. Take the same example agayne, and reduce the 20 li. 63 s. 44 d. 10. far. all in to farthynges, and it wyll make 22410 farthynges. fy^{yste} reducyng the poundes to shelynges, then to pens, & all that pens to farthynges: wherfoze it shall be very necessary for you to knowe what thyng your number doth signyfy, whether

ther waight mony measure, or tyme: and
to be expert in all maner of accomptes: it
shalbe necessary for you to knowe all ma-
ner of wayghtes, coynes, measures, and
tyme. Example, in englysh money 4 far-
thyngs make 1 D. 12 D. maketh a shelyng
20 shelynges maketh a pownde.

In weyght, and fyrst of troy weyght,
euery pownd hath 12 ounces, and euery
ounce 20 peny weyght, and euery peny
weyght 20 graynes. &c.

The haberdepeys pownd hath 16 oun-
ces, an ounce 8 Dragmes, the Dramme 3
scruples, the scruple 20 graynes.

Of measure, the yarde hath 3 foote,
the foote 12 ynches, the ynche 3 barley
cornes of length.

Of tyme, the yere hath 365 dayes, the
daye 24 houres, the hour hath 60 minu-
tes, euery minut 60 secondes, euery se-
conde 60 thyrdes, euery thyrde 60 quar-
tes, euery quartes 60 fyftes, euery fyfte
60 syxtes, and so forth infynytely.

To reduce the more summe
to the lesse.

c. v. when

When thou wylte reduce the moze to the lesse, loke howe many tymes the lesse is contayned in the moze, and by that nūber multiply the number of the moze and that that cōmeth of the multiplycacyon sheweth the moze reducyd to the lesse.

Example. I wolde reduce s. d. to farthynge loke howe many tymes a farthynge is contayned in a peny, and that is as ye knowe 4 tymes, then multiplie accordynge to the rule s. by 4, and that maketh 32 whiche be 32 farthynge, and so s. d. maketh 32 farthynge.

An other example. Here is a summe of 28 li. and 6 s. I wolde haue this powndes, whiche is of moze denominacyon reducyd to the shelynges, whiche be of lesse denominacyon: then loke fyrste how ofte a shelynge is contayned in a pound, and that is 20 tymes, for 20 s. maketh a li. multiply then the 28 li. by 20, therof cōmeth 560, whiche be all shelynges: to this put the other 6 shelynges and so all is 566 shelynges.

But

But ye shall note that where there be any summe of meane denominacyons betwene the moze to be reducyd and the lesse to whome reduccyon is made: then shall it be easer to reduce fyrste the moze to the meane, and so by the meane to the lesse.

The example. 43 li. 19 s. 20 d. 4 farthynges. yf ye wylt reduce all this summe to the farthynges, then shall it be better for you to reduce 4 poundes fyrste to shelynges and then beyng shelynges to reduce them to pens, and at the laste to farthynges: so by your rule 43 ponde maketh 860 shelynges, to that adde the 19 shelynges, it maketh 879, then reduce this 879 shelynges to pens: loke fyrste howe many pens are contayned in a shelynge, and that is 12, multiply 879 by 12 therof cometh 10548 which be all pens, to this adde your 20 pens, and that maketh 10568 d. then reduce this pens to farthynges, se how many farthinges be in a peny 4 is 4, multiply 10568 by 4 cometh 42272
to

to these adde the 4 farthynges and that maketh 42276 farthynges. Thus haue ye reducyd 43 li. 19 s. 20. d. 4 farthynges the moze by the meane to the lesse.

To reduce the lesse to the moze.

Fyrste marke howe many tymes the moze doth contayne the lesse, and by that number dyuyde the lesse, and the quocyt sheweth the lesse reducyd to the moze.

Example. I wold haue this sum 5600 s. reducyd into powndes: fyrste how many tymes a pownde doth contayne a Shelyng that is 20 tymes, then diuyde 5600 by 20 the quocient shalbe 280, which be powndes: so that 5600 s. reducyd to powndes maketh 280 li. & so lykewyse in all other rekenynges.

When summes of dyuers denominacyons come in addition to be addyd togyther, then begynnynge at the summes of least denominatiō: adde them euer togyther tyll suche tyme as they make a number of the nexte denominacyon, and that that remaineth not able to make any nūber of greater denominacyon, set it vnder the
the

the lyne & procede to the nexte summe of greater denominatiō, to the whiche adde the number of the same denomination reducyd out of the sum befoze of the lesse denomination, so procedynge to the ende.

¶ Ensample.

li.	s.	d.	far.
1680	10	5	3
8200	29	7	2
2008	3	10	3

¶ Begyn at the least whiche be farthynges: sayenge 3 & 2 be 5, and 3 ben 8 this 8 farthynges make 2 pens, therfoze take this pens and adde them to the nexte sum which is of the same denominacyon, sayenge 2 and 10 be 12 d. which is 1 shelyng the 7 and 5 be 12, whiche also maketh a shelynge, so emonge these pens ye haue 2 shelynges to be addyd to the nexte order of shelynges, sayenge 2 and 3 be 5 and 9 be 14, put the dygget 4 vnder the lyne, and reserue the article 1 to the next place, sayenge 1 and 2 be 3 and 1 be 4, set that 4 vnder the lyne also and then is it 44 s. the whiche reducyd to poundes maketh 2 li.

2 li. and 4 s. remayneth vnder the tittle
of Shelpnges: then put that 2 li. to the o-
ther powndes, and so haste thou done in
reduccion of the summes of lesse value to
the greatest sum, which be powndes. And
this is sufficyetly entreatyd of reduccyo.

¶ Here foloweth of pꝛogressyon.

Pꝛogressyon sheweth the nomber
whan it begynneth at 1 or at 2 in
mountynge alwayes by one, & one,
as doth this number 1 2 3 4 5 6 7 8 9.

Now yf ye wyll know the valour of these
numbers, fyrst ye must regarde two thyn-
ges, that is to wyte, yf the nūber pꝛocede
contynually without leuyng any thyng
betwyxte as here 1 2 3 4 5 6 7 or yf it leue
any thyng betwyxte as here, 1 3 5 7 9.

Secondely ye must consyder yf the num-
ber be euen or odde. And after these two
consyderacyons, then by foure rules that
here foloweth ye maye knowe the valour
of eche whole number.

¶ The fyrste rule is whan one number
pꝛoce

procedeth in mountynge alwayes contynually in the begynnynge, than yf it ende in an euen number, than shal we take the halfe of that euen number, and by it we shall multiply the odde number that cometh of the euen number, as ye maye se in this ensample folowynge:

¶ Ensample.

$$\begin{array}{r}
 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \\
 \hline
 4 \\
 9 \\
 \hline
 36
 \end{array}$$

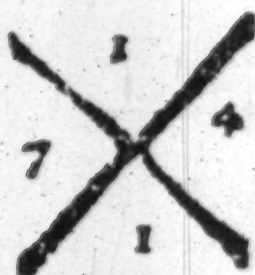
¶ yf ye wyll knowe howe much this nūber is worth, than multiply

ply the halfe of 8 that is 4 and the number that is after 8 is 9, and then therof cometh 36, and so muche is the summe worth, and thus may ye do with all such lyke questyons.

¶ An other example.

$$\begin{array}{r}
 1 \ 1 \ 1 \ 4 \ 5 \ 6 \ 7 \\
 \hline
 4 \\
 7 \\
 \hline
 28
 \end{array}$$

The




proue.

¶ For to multiplie this number 7 wher in the greatest and the more halfe is 4 ye muste multiplie 7 by 4 and it is 28, & so much is the hole summe.

¶ The thyrde is, yf a nūber procede not contynually, and ende in an euen nūber, ye shall take the halfe of the sayde nūber that is euen, and by hym multiplie the same that is nexte comyng after the same halfe, and in thus doynge, ye shall haue the summe of the same number.

¶ An example.

2	4	6	8		
				4	The 4  5 proue.
				5	
				20	

¶ Yf ye wyl knowe howe much this nūber is worth, thā take the halfe of 8 that is 4 then multiplie by the 4 the number whiche foloweth, that is 5 in sayenge 4 tymes 5 is 20, and so much is worth the whole summe.

¶ The fourth is whan the sayd number procedeth not contynually, then yf it ende
in

in an odde nomber, ye shall take the halfe
of the sayd nomber that is odde, and mul-
tippy it by it selfe.

¶ And other ensample.

$$\begin{array}{r} 1 \ 3 \ 5 \ 7 \\ \hline 4 \\ 4 \\ \hline 16 \end{array}$$

The

$$\begin{array}{c} 7 \\ \times \\ 4 \\ \hline \end{array} \quad \begin{array}{c} 4 \\ \times \\ 4 \\ \hline \end{array} \quad \text{proue.}$$

¶ yf ye wyll knowe how much is worth
this nomber, then take the greater halfe
parte of 7, whiche 7 is the odde nomber
and the greater is 4 then multiplye the
same 4 by hym selfe in sayenge 4 tymes
4 is 16, and so muche is worth the sayde
number. And thus ye maye do with any
other suche lyke questyons.

¶ yet is there another progressyon, and
it is also a maner of duplicacyon as here
after shall appere.

1 2 4 8 16 32

¶ Now yf ye desyre to make a somme of
these do nothyng els but double the laste
fygures as 32 and 32 is 64 and thereof
subtra 1 and there resteth 63, and that is
the somme, and it is done.

f.i.

¶ The rules of fraccyons.

In fraccyons there be two maners of numbers, wherof the fyrste is called the numerator, for he sheweth the number of the denominator, that standeth vnder hym. The other is called the denominator, for he sheweth euer howe much the parte is, and standeth euer vnder the numerator, and ye may make betwene them bothe a lyne yf it please you, as appereth in these ensamples folowynge.

Seuen by 9 departed ye shall set thus $\frac{7}{9}$

And 1 by 2 departed thus $\frac{1}{2}$

And 1 by 4 departed thus $\frac{1}{4}$

¶ Numeracyon.

Numeracyon is the fyrste speche, and it is nothyng elles but that ye must euer set the lesse somme aboue and the more somme vnderneath, as by these ensamples folowynge is shewed.

1	1	1	2	6	8	3	4	5	6	8
2	5	9	3	7	10	4	6	9	8	14

¶ Of addycyon in broken.

If ye wyll adde two, or thre, or foure broken numbers together, ye muste marke whether þe numbers be of one denominaciō as these $\frac{1}{3}$ & $\frac{2}{3}$ yf they be al of one name, than adde them together, in sayeng 1 & 2 is 3, set the 3 aboue 3, and þ is 1 hole. Now adde $\frac{2}{5}$ $\frac{4}{5}$ & $\frac{2}{5}$ together and set them thus $\frac{8}{5}$ they make 1 and $\frac{3}{5}$

Now wyll ye adde broken and vneuen numbers as $\frac{2}{3}$ to $\frac{3}{4}$ then multiply them crosse wyse and saye 3 tymes 3 is 9, and 2 tymes 4 is 8, adde that 8 to 9 and it is 17, then multiply the numbers together in sayenge 3 tymes 4 is 12 set that 12 vnder 17 as thus $\frac{17}{12}$ that is 1 and $\frac{5}{12}$

When ther cometh more broken numbers then two at ones, as in this ensample, yf you wolde adde $\frac{5}{4}$ $\frac{5}{5}$ to $\frac{4}{5}$ then

make the two fyyste numbers after þ rule
f. ii.

afoze sayd, & it commeth to $\frac{14}{24}$ Now adde
 $\frac{28}{24}$ to $\frac{4}{5}$ and multiplye them crossewysse,
 in sayenge 5 tymes 38 is 190, then 4 ty-
 mes 24 is 96, therto adde 190 commeth
 286, set them aboue the lyne, then mul-
 typly 5 with 24 cometh 120, set them vn-
 der the lyne, and they stande thus $\frac{286}{120}$
 that is 2 and $\frac{46}{120}$ Now adde me $\frac{1}{2}$ and $\frac{3}{5}$
 $\frac{4}{7}$ then say 2 tymes 3 is 6 and 5 ty-
 mes 1 is 5 adde them togyther, for the
 tellers, & set it aboue the lyne, then mul-
 typly the two nūbers togyther in sayeng,
 2 tymes 5 is 10, set that 10 vnder 11 as
 thus $\frac{11}{10}$ Now adde $\frac{11}{10}$ to $\frac{4}{7}$ multiplye
 them crosse wysse lyke as ye dyd in þ en-
 sample befoze & ye shall haue $\frac{117}{70}$ whiche
 is 1 and $\frac{47}{70}$ and thus ye shall do with
 all other.

¶ Subtraccyon,

Wyll ye subtra broken frome broken,
 then ye must marke whether the num-
 bers of the same broken be lyke in
 denominacyon or not and yf they be lyke
 of name, then euer subtra y lesse teller out
 of the moze, and set the number vnder the
 teller. As for example, yf ye wyll subtra
 $\frac{5}{12}$ from $\frac{7}{12}$ then subtra the vppermost 5
 out of 7 and there resteth 2, set y 2 aboue
 12 as thus $\frac{2}{12}$ that is $\frac{1}{6}$ But whē there co-
 meth broken and vneuen numbers, as
 these $\frac{9}{13}$ from $\frac{5}{6}$ then multiply bothe the
 numbers togyther, in sayenge 6 tymes
 13 is 78. Then multiplie crossewysse the
 numbers with the tellers, in sayenge 13
 tymes 5 is 65 fro 6 tymes 9 is 54, nowe
 subtracte 54 frome 65 and there resteth
 11, that 11 set aboue 78 as thus $\frac{11}{78}$ Nowe
 wyll ye subtra $\frac{1}{3} \frac{5}{4}$ from $\frac{2}{3} \frac{4}{5}$ breke eche
 together and cometh to $\frac{13}{12}$ and $\frac{22}{15}$ then
 multiplie the numbers in sayenge 15 ty-
 f.iii.

mes 12 is 180, then multiply them crosse
 wyse in sayenge 12 tymes 22 cometh 264
 then saye 15 tymes 13 cometh 195, nowe
 subtra this 195 from 264, and there re-
 steth 69 whiche 69 set aboue 180 as thus
 $\frac{69}{180}$ and it is done.

$$\frac{2}{6} \text{ from } \frac{1}{6} \text{ is } \frac{6}{36}$$

$$\frac{1}{3} \text{ from } \frac{1}{4} \text{ is } \frac{1}{12}$$

¶ Multiplicacyon in broken.

If ye wyll multiply $\frac{6}{7}$ with $\frac{13}{16}$ then
 multiply the vppermost fygures to-
 gyther in sayenge 6 tymes 13 is 78, then
 multiplye the nethermost together in
 sayenge 7 tymes 16 is 112, the whiche ye
 shall set thus $\frac{78}{112}$ that is $\frac{39}{56}$ Nowe wyll
 ye multiplye broken with the hole, as $\frac{2}{5}$
 with $\frac{6}{1}$ then saye 2 tymes 6 is 12 and 5
 tymes 1 is 5 set them thus $\frac{12}{5}$ And whē
 that the vppermost number is moze then
 y^e nethermost, then ye shall diuylde it with
 the nethermost, & that that cometh therof
 is

is the whole, as thus diuys 12 with 5 cometh 2 hole & $\frac{2}{5}$ Now wyll ye multiply the hole & broken with the broken as $7\frac{3}{4}$ with $\frac{5}{8}$ then multiply them with 4 cometh 28 and adde 3 therto cometh $\frac{31}{4}$ Now make it after þe fyrst rule, in sayeng 5 tymes 31 is 155, and 4 tymes 8 is 32 set them thus $\frac{155}{32}$ that maketh $4\frac{27}{32}$ and it is done

$$\frac{1}{3} \text{ and } \frac{1}{4} \text{ is } \frac{1}{12} \qquad \frac{2}{3} \text{ and } \frac{6}{8} \text{ is } \frac{12}{24}$$

Diuysyon in broken.

The number þe ye wyll diuide set euert at the lyfte hande, & that ye wyll diuysde withall set at the ryght hande.

As when ye wyll diuysde $\frac{4}{5}$ with $\frac{2}{3}$ then

ye shall multiply the broken crossewyse in sayenge 3 tymes 4 is 12 þe is þe hole that ye wyll diuysde, then multiplye 5 with 2 cometh 10 þe is $\frac{2}{10}$ maketh $1\frac{2}{10}$ And whē

that ye wyll diuysde broken with hole, as $\frac{5}{7}$ with 4 then set your fraccyon & hole

thus $\frac{2}{7} \frac{4}{1}$ now multiply 1 with 3 that
is the hole whiche must be diuved, then
multiply 4 with 7 & it maketh 28 which
must be set thus $\frac{2}{18}$ and it is Done. But

pf ye maye diuved the teller iust with the
whole that were lyghter, as $\frac{18}{19}$ in 6 whole

therfoze diuide 18 in 6 maketh 3 the whi
che ye shal set thus $\frac{2}{19}$ Now wyl ye know

what broken of broken is, as $\frac{2}{3}$ of $\frac{3}{4}$
fyrst ye shall multiplye the vppermost
fygures one with an other sayenge 2 ty-
mes 3 is 6 and then the vppermost in
sayenge 3 tymes 4 is 12 that maketh $\frac{6}{12}$

that is $\frac{1}{2}$ Item $\frac{6}{7}$ of 128 $\frac{2}{3}$ multiplye
128 with 3 and adde therto 2 cometh 386
whiche set thus $\frac{2}{3}$ then multiply them

with 6 cometh 2316 then multiply the vn-
dermost altogpyther sayenge 3 tymes 7 is
21 and 2 tymes 21 is 42 therwith diuved
2316, and it is Done.

A table very necessary for multiplicacyon.

1 tyme	1 maketh	1	4	6	24
2	2	4	4	7	28
3	3	9	4	8	32
4	4	16	4	9	36
5	5	25	4	10	40
6	6	36	5 tymes 6 maketh 30		
7	7	49	5	7	35
8	8	64	5	8	40
9	9	81	5	9	45
10	10	100	5	10	50
2 tymes 3 maketh 6			6 tymes 7 make 42		
2	4	8	6	8	48
2	5	10	6	9	54
2	6	12	6	10	60
2	7	14	7 tymes 8 maketh 56		
2	8	16	7	9	63
2	9	18	7	10	70
2	10	20	8 tymes 9 maketh 72		
3 tymes 4 maketh 12			8	10	80
3	5	15	9 tymes 10 make. 90		
3	6	18	1 tyme 11 maketh 11		
3	7	21	2	11	22
3	8	24			
3	9	27			
3	10	30			
4 tymes 5 maketh 20					

f.b.

3
4
5
6
7
8
9
10

11
11
11
11
11
11
11
11

33
44
55
66
77
88
99
110

6
7
8
9
10

14
14
14
14
14

84
98
112
125
140

1 tyme 12 maketh

2
3
4
5
6
7
8
9
10

12
12
12
12
12
12
12
12
12

12
24
36
48
60
72
84
96
108
120

1
2
3
4
5
6
7
8
9
10

15
15
15
15
15
15
15
15
15

30
45
60
75
90
105
120
135
150

1 tyme 13 make

2
3
4
5
6
7
8
9
10

13
13
13
13
13
13
13
13
13

13
26
39
52
65
78
91
104
117
130

1
2
3
4
5
6
7
8
9
10

16
16
16
16
16
16
16
16
16

16
32
48
64
80
96
112
128
144
160

1 tyme 14 make

2
3
4
5

14
14
14
14

14
28
42
56
70

1
2
3
4
5
6
7

17
17
17
17
17
17
17

17
34
51
68
85
102
119

8	17	136
9	17	151
10	17	170
1 tyme	18 make	18
2	18	36
3	18	54
4	18	72
5	18	90
6	18	108
7	18	126
8	18	144
9	18	162
10	18	180
1 tyme	19 make	19
2	19	38
3	19	57
4	19	76
5	19	95
6	19	114
7	19	133
8	19	152
9	19	171
10	19	190
1 tyme	21 make	21
2	21	42
3	21	63
4	21	84
5	21	105
6	21	126
7	21	147
8	21	168
9	21	189
10	21	210

1 tyme	22 make	22
2	22	44
3	22	66
4	22	88
5	22	110
6	22	132
7	22	154
8	22	176
9	22	198
10	22	220

1 tyme	23 make	23
2	23	46
3	23	69
4	23	92
5	23	115
6	23	138
7	23	161
8	23	184
9	23	207
10	23	230

1 tyme	24 make	24
2	24	48
3	24	72
4	24	96
5	24	120
6	24	144
7	24	168
8	24	192
9	24	216
10	24	240

tyme	make	35	4	27	108
3	25	50	5	27	135
3	25	75	6	27	162
4	25	100	7	27	189
5	25	125	8	27	216
6	25	150	9	27	243
7	25	175	10	27	270
8	25	200			
9	25	225			
10	25	250			

tyme	make	26	1 tyme	28 make	28
2	26	52	2	28	56
3	26	78	3	28	84
4	26	104	4	28	112
5	26	130	5	28	140
6	26	156	6	28	168
7	26	182	7	28	196
8	26	208	8	28	224
9	26	234	9	28	252
10	26	260	10	28	280

tyme	make	27	1 tyme	29 maket	29
2	27	54	2	29	58
3	27	81	3	29	87
			4	29	116
			5	29	145
			6	29	174

7	29	203	1 tyme	33 maketh	33
8	29	222	2	33	66
9	29	261	3	33	99
10	29	290	4	33	132
			5	33	165
			6	33	198
1 tyme	31 make	31	7	33	231
2	31	62	8	33	264
3	31	93	9	33	297
4	31	124	10	33	330

5	31	155	1 tyme	34 make	34
6	31	186	2	34	68
7	31	217	3	34	102
8	31	248	4	34	136
9	31	279	5	34	170
10	31	310	6	34	204
			7	34	238
			8	34	272
1 tyme	32 make	32	9	34	306
2	32	64	10	34	340

3	32	96	1 tyme	35 make	35
4	32	128	2	35	70
5	32	160	3	35	105
6	32	192	4	35	140
7	32	224	5	35	175
8	32	256	6	35	210
9	32	288	7	35	245
10	32	320			

8	35	280
9	35	315
10	35	350

1 tyme 36 make 36

2	36	72
3	36	108
4	36	144
5	36	180
6	36	216
7	36	252
8	36	288
9	36	324
10	36	360

1 tyme 37 make 37

2	37	74
3	37	111
4	37	148
5	37	185
6	37	222
7	37	259
8	37	296
9	37	333
10	37	370

1 tyme 38 make 38

2	38	76
3	38	114
4	38	152
5	38	190
6	38	228
7	38	266
8	38	304
9	38	342
10	38	380

1 tyme 39 make 39

2	39	78
3	39	117
4	39	156
5	39	195
6	39	234
7	39	273
8	39	312
9	39	351
10	39	390

11 tyme 11 make 121

12	12	144
13	13	169
14	14	196

35	35	225	41 tymes	41	1681
36	36	256	42	42	1764
37	37	289	43	43	1849
38	38	324	44	44	1936
39	39	361	45	45	2025
			46	46	2116
21 tymie	21 make	441	47	47	2209
22	22	484	48	48	2304
23	23	529	49	49	2401
24	24	576	51 tymes	51	2601
25	25	625	52	52	2704
26	26	676	53	53	2809
27	27	729	54	54	2916
28	28	784	55	55	3025
29	29	841	56	56	3136
			57	57	3249
31 tymie	31 make	961	58	58	3364
32	32	1024	59	59	3481
33	33	1089			
34	34	1156	61 tymes	61	3721
35	35	1225	62	62	3844
36	36	1296	63	63	3969
37	37	1369	64	64	4096
38	38	1444	65	65	4225
39	39	1529	66	66	4356

67	67	4489	84	84	7056
68	68	4624	85	85	7125
69	69	4761	86	86	7396
71 <i>tyines</i>	71	5041	87	87	7569
72	72	5184	88	88	7744
73	73	5329	89	89	7921
74	74	5476	91 <i>tyines</i>	91	8281
75	75	5625	92	92	8464
76	76	5776	93	93	8649
77	77	5929	94	94	8836
78	78	6084	95	95	9025
79	79	6241	96	96	9216
81 <i>tyines</i>	81	6561	97	97	9409
82	82	6724	98	98	9604
83	83	6889	99	99	9801

There foloweth the rules / and
fyyste the rule of thye.

Multyplye by the contrary & dyuyde
by the semblaunt or lyke. This rule
maye be vnderstande in twoo ma-
ners. Fyyste multyplye the same that ye
wyl bye by his contrarpe, that is to witte,
by the pryce, and deuyde by the semblaunt
that is to wytte, by as moche as ye haue
bought: or thus, multyplye the pryce by
his contrarpe, that is to wpt, by the same
that thou wylt bye, and deuyde it by his
semblaunt, that is that same that ye haue
bought. And note ye why it is called the
rule of thye, for with thye nōbers certayn
ye maye knowe and fynde the fourthe nō-
ber vncertayne. And it is a rule ryght no-
table and necessarpe in the sayct of mar-
chaūdyse. For to haue knowlege of this
rule, it behoueth to set some rules dyffe-
rent in maner of questyons, and fyyste in
measures longe.

The rule of hole nombers.

Ex 9 elles of cloth cost 25 cronos, howe
g.i, moch

mych shal cost 15 by the pzece. Answer. It
 behoueth you to set the somme, that is to
 wyte, 25 crones. And than ye shal multipli
 by his contrary / that is to wyte, by 15 that
 ben 375, and than deuyde them by that sem
 blaunt, that is to wyte, by 9, and therof co-
 meth 41 crones and an halfe / and there re-
 mayneth 1 crone and an halfe, the wyche
 ye shall make in 13. and there ben 54 13. the
 whych ye shall deuyde by 9 and therof co-
 meth 6 13. Therfore ye maye answer that
 the 15 elles shal cost 41 crones and an half,
 and 6 13. Now yf ye wyl make the proue/
 it behoueth you to forme youre questyon
 thus yf 15 elles cost 41 crones and an halfe,
 and 6 shyllynges / how moche shall cost 9
 elles by the pryce. Then it behoueth you
 fyrst to multiplie the 6 13. by 9 and that be
 54 / then it behoueth you to make therof
 crones, that is 1 crone and a halfe and the
 ye shall multiplie the 41 crones and an
 halfe by 9, and they ben 373 crones and an
 halfe / and then set therto 1 crone and an
 halfe, and they be 375 crones whyche ye
 shall deuyde by 15 / that ben 25 / the whych

as ben the pryce of 9 elles / and so the rule
is good / and thus ye maye do of all other
semblable.

The secōde rule of hole numbers with
numbers broken semblable.

Cys 10 elles and 2 thynde partes of cloth
cost 35 francz / how moche shall cost 14 el-
les by the pryce. Answer. For to knowe
this rule and other semblable / it beho-
ueth you to reduce the elles bought, and
them that ye wyl bye all into thyndes by-
cause of them that be bought / in sayenge
thus, 3 tymes 10 ben 30, and set therto 2
thyndes, that is than 32 thyndes. Then
it behoueth you to make dyuysyon by 32 /
and than ye shall reduce the 14 elles in-
to 1 thynde, in sayenge 3 tymes 14 ben
42. Then 42 shall be the multiplycator.
Now set the somme / that is to wyte 35
francz. the whyche multiplyed by 42 be
1470 the whyche dyuyled by 32 therof co-
cometh 45 franc. and an halfe, and there
resteth 14 franc, the which ye shal reduce to
g.ii. shyll.

Shyllynge, and than dyuyde theym by 32
and therof cometh 8 shyllynge, and an
halfe, there resteth 8 shyllynge, and than
shall ye make them in pens, and dyuyde
them by 32, and therof cometh 3 pens / ther
foze ye maye answere that the 14 elles of
cloth shall coste 45 francz and an halfe 8
shyllynge and an halfe, and 3 pens.

Foꝛ to make the pꝛoue it behoueth you
to make your worke by the contrarpe, foꝛ
it behoueth you to multiplye the somme
that the 14 elles cost by the dyuysoꝛ, and
dyuyde it by the multiplicatour. There-
foze set the somme vppon the lyfte syde/
and fyrste multiplye the 3 s. by 32, & whan
they be multiplyed ye shall make of them
shyllynge, and then ye shall multiplye
the 8 s. and the halfe by 32: and then make
therof francz. And then ye shall multiply
the 45 francz and the halfe by 32, and de-
uyde them by 42, and so ye shall knowe yf
the rule be well made.

The thyrde rule of hole num-
bers with dyuers minutes.

Cyf 4 elles and 2 thyꝛdes of clothe coste
 10 cronos, how moche shall coste 6 elles &
 2 quarters by the pryce. For to know this
 rule, it behoueth you fyrste to reduce the 4
 elles and 2 thyꝛdes thus, 3 tymes 4 ben 12
 And than ye shall adioyne the 2 thyꝛdes, &
 than it is 14. And than the elles that ye
 wyl bye, ye shall reduce theym in to one
 fourthe thus, 4 tymes 6 ben 24. And then
 set the 2 quarters therto, and than there is
 26 quarters. And than ye shall multiplie
 that one by that other, that is to wytte the
 nombꝛant of the fyrste by the denominat
 of the seconde, in sayenge 4 tymes 14 ben
 56. And those 56 shalbe the deuisoꝝ. Than
 myltiuple the nombꝛant of the seconde, by
 the denominant of the fyrste in sayenge 3
 tymes 26 ben 78, and those 78 shall be the
 multipliyatoꝝ. And therfoꝛe set 10 cronos
 and multiuple them by 78, and deuyde
 them by 57. And ye shall fynde that the 6
 elles and 2 quarters cost 15 cronos and an
 halfe, 15 shyllynges & 5 pens. And there
 resteth 8.

The example.

G. ii.

Deuis

Denysfor

99

56

142

141

78

10 croncs

246

2

3

4

If 4 elles $\frac{2}{3}$ coste 10 croncs / 6 elles

$\frac{2}{4}$ shall coste 15 croncs and an haile is
shyllinges 5 pens, there resteth 8.

For to make the proue it behoueth you
to worke the contrary / for it behoueth you
to multiplye the somme by the diuysour/
that is to wyte / by 59, and make dyuysyon
by the multiplicatour / that is to wyte / by
78 and ye shall fynde 10 / otherwysc yf
there be moze or lesse the rules be fals.

The fourth rule conteynyng hole nom
bres to the marchaundysc that ye haue
boughte and mynutes to the same that ye
wyl bye.

If 8 elles of cloth cost 15 croncs / howe
moche shal cost two quarters by the pryce.
For to knowe this rule ye must reduce the
8 elles into quarters, in sayenge 4 tymes
8 ben

s ben 32 / then 32 shall be the deuyf 02 / and
the 2 quarters shall be the multiplycator
Now set the 15 croncs and multiply them
by 2 quarters , and dyuyde by 32 and
ye shall fynde that the 2 quarters cost 0
croncs and the halfe 15 shyllynges and
an halfe 3 pengs. For the make the proue/
ye must worke the contrary, for ye shall
multiply the somme that the 2 quarters
cost / that is to wyte , 0 croncs , and the
halfe 15 sz. and an halfe 3 pengs by 32 and
dyuyde them by 2 .

The rule of rounde measures / that
is to wyte / measure of coyne of wyne and
oyle.

First it behoueth you to presuppose
and knowe the measures of coyne.

One mny is worth 12 septyers.

One septyers is worth 4 mynotes.

One mynot is worth 3 busshelles.

One busshell is worth 4 quarters.

g.iii.

The

The measures of wyne.

One mup of wyne holdeth 36 septyers

The septyer holdeth 4 quarters.

The quarte holdeth 2 pyntes.

The pynt holdeth 2 choppynes.

The choppyne 2 halfe septyers.

The halfe septyer 2 posspons.

The fyrste rule.

If the mup of corne cost 10 francz, how moch is worth the bushell? Answer. For to knowe this rule ye muste knowe howe many busshels ben in 1 mup. Therfore multiplye the mup by 12, and than by 4, & than by 3, whiche ben 144 busshelles, the whiche shall be the deuysoz of the 10 francz therfore deuyde 10 by 144. And therof com meth 1 sz. 4, d. and an halfe / resteth 24 d. Therfore the bushell costeth 1 sz. 4 pens & an halfe, resteth 24 d.

The seconde rule.

To the contrary, yf the bushell coste 2 sz. how moche shall coste a thousande and 4 hondzeth Mups by the pryce. Answer. For to knowe this rule, it behoueth you
to

to make all the Mays in bushels. And there be ²⁰¹⁶⁰⁰ bushels, the which it beho-
ueth you to multiplye by 2, and there be
⁴⁰³²⁰⁰, and of them ye shall make crones.
Therfore deuyde by 36, and there ben ¹¹²⁰⁰
crones. Therfore ye maye answer that
yf the bushell cost 2 s. a thousande and
4 hondzeth mays shall cost enleuen thou-
sande and 2 hondzeth crones, and thus ye
maye do of all other semblable.

CThe thynde rule.

CYf the septyer of corne be worth 1 francz
& the lofe of peny toznoys weyght 12 oun-
ces, how mych ought it to weygh whan 5
septyer is worth 15 toznoys. Answer Mul-
typlye the fyrst nōber by the seconde, that
is to wytte, ²⁰ by 12, and deuyde it by 15, &
ye shall fynd that it ought to wegh ¹⁶ oun-
ces. And thus ye maye do of al other lyke.

CIf the may of wine be worth 12 francz,
how moche ought the pynte to be worthe.
Answer. For to knowe this questyon, it
behoueth you to reduce the ¹² mays into
septyers, from septyers into quartes, and

g. v.

from

from quartres into pyntes / and that ben
288 pyntes . And than ye shall reduce
the 12 francz in to sz. that ben 240 , and
than into pens / that ben 2880 pens / the
whyche behoueth you to deuyde by 288
and it cometh to 10 d. Therfore yf the mup
of wyne cost 12 francz , the pynte is worth
10 d. But it is requysyte that the Tauer-
ner haue some gaynes yf ye sell 12 d. the
pynt . I demaunde howe moche shall he
wynne vpon the mup? Answer. He selleth it
2 d. more than it is worth therfore mul-
typly 288 pyntes by 2 and they be 576, the
whyche ye may deuyde by 12 and ther shal
be 48 sz. Therfore may ye answer that he
getteth 48 sz. vpon the mup.

¶ Yf the mup cost 10 francz how mych is
worth the pynt. Answer. It behoueth
you to do as is aboue sayde / and ye shall
fynde that it is worth 8 pens and 1 thynde.

¶ Yf the pynt cost 6 pene, how moch shal
cost 12 mups by the pryce. Answer. It
behoueth you to knowe how many pyntes
ben in a mup / that is 288 , multiply 12
mups by 288 that is 3456, pyntes. And
than

than multiply the pyntes by 6 tha ben
²⁰⁷³⁶, of whome ye shall make s3. by dyuys-
 sion, and there ben ¹⁰⁷²⁸ s3, and of shyl-
 linges ye shall make francz. Therfore
 ye shall make dyuysion by 26, ye shall
 fynde 86 francz 8 s3. Therfore ye may
 answere that the 12 muys shall coste 86
 francz 8 s3.

In so mych as competently we haue
 tracted of the rule of thye in the sayct
 of measures/it is expedyent that
 we tracte therof in the saycte
 of weyghte.

Cyl an hondreth poundes of peper cost
²⁰ s3. how moch shall cost 6 pound by the
 pryce? Answer. For to knowe this que-
 stion, ye must multiplye by the contrary
 and deuyde by the semblaunt, that is to
 wyte, multiplye by 6 and dyuyde by 10,
 and ye shall fynde that the 6 poundes shal
 cost 1 francz. and 4 s3. To make the proue
 ye must multiplye by 100 and dyuyde by 6.
 Now I demaunde yf the 6 poundes cost 1
 franc, 4 s3, how moche is worth the ounce,
 For

For to knowe this, ye shal make the poundes in ounces, the whiche ben 96 ounces, & then make the money in pence, the whiche ben 288 d. the whiche ye shal deuide by 96 and therof cometh 3 pence, therefore the ounce shal coste 3 d.

If one li. of saffron cost 3 francz and an halfe, how moche is worth the ounce. Answer. It behoueth you to knowe that in a pounce ben 16 ounces, therfore deuide the 3 francz. and the halfe by 16, and ye shal fynde that the ounce is worth 4 s. 4 d. and an halfe, & thus ye maye do of other lyke.

If 4 pounce of saffron cost 16 fran. 6 s. 8 d. how moche shal coste 3 quartons by the pryce. For to knowe this rule, ye shal reduce the 4 li. in thyndes and shal saye 3 tymes 4 ben 12, and 1 thynde ben 14 than ye shal multiplye by 4, and shal saye 4 tymes 14 ben 56 the diuisor, than for the seconde number we shal saye, 3 tymes 3 ben 9 fourthes or quarters, the whiche 9 shal be the multiplie. Now set the 16 francz 6 s. 8 d. tournours, & multiplye them by 9 and deuide them by 56, and therof cometh 2 fran.

and

and an halfe, 2 sz. 6 d. therfore ye may an-
swere that the 3 quarters shall cost 2 fran.
& an halfe 2 sz. 6 d. For to make the proue
ye must worke by the contrary in multiply-
plyenge by the deuysoz, that is to wyt by
56 and make deuyson by 9, and so maye
ye do of other semblable.

If one pouūd of tyn cost 6 blances, how
many hondreth shall I haue for a thou-
sand and 4 hunderth francz. It behoueth
you to know how moch is worth the hon-
derth by 6 blances the pound. And ye shal
fynde that there is 12 francz and an halfe,
Now make dyuyson of 1400 frances by
12 frances and an halfe, ye shall fynde 112.
Therfore ye maye saye that I shall haue
112 pound of tynne for 1400 frances.

And also as we haue made this rule, ye
maye do in all other marchaundyses, as
in lead, yron, spyces, peper, suger. And as
we haue done of poundes ye maye do of
quartrons, ounces, & all other weyghtes.

A rule whiche is without tyme.
The marchauntes put theyr monye
together for to haue gaynes, & whi-
che

the haue bought suche marchaundyse
as hath cost 125 francs / wherof the fyrste
hath layde 25 francs . The seconde 64
fr. and the thyrde 36 fr. And they haue go-
ten 54 franc. of clere gaynes. I demaunde
how shall they deuyde it, so that eche man
haue gaynes accoꝝdyng to the money
that he hath layd downe. Answer. In all
suche rules and qustions ye shall multy-
plye eche one after the money that he had
layd, therfoꝝe multyplye the gaynes foꝝ
the fyrst by 25 and deuyde by 125, that is the
dyuysioꝝ commune. Foꝝ the seconde mul-
typlye the gaynes by 64, and dyuide by 125
the dyuysioꝝ commune. And foꝝ the thyrde
multyplye the gaynes by 36, and dyuide
125 the dyuysioꝝ commune. And foꝝ to fynd
the dyuysioꝝ commune, ye shall let togyther
the multiplicatours / that is to wyte 25, 64,
and 36 which is 125 the dyuysioꝝ commune.
And so shall ye do in al rules of compayne.
Nowe ye maye fynde & knowe how moch
eche one hath of gaynes, and ye maye se it
by the ensample here present.

The fyrste hath 10 fr and halfe 2 fr. The
second

second hath 27 £ 3 s & halfe 2 s . and halfe 5
 d . & halfe, resteth 2 d . and halfe. The thyrde
hath 15 £ 3 and halfe 5 s . resteth 60 pens.

256436

125

Multyplycatour. **D**yuyfour.

And they haue yet to be dyuided amonge
them of restes 62 d . and an halfe

For to make the proue it behoueth you
to dyuyde the restes, and than reduce all
to gythers, and ye shall fynde the somme
dyuyded, for all the rules of company ben
proued by addycyon of sommes.

The seconde rule of hole tyme.

Foure marchauntes laye money toge-
ther for wyunnyng, for a certayne tyme, of
whome the fyrste hath layde 10 £ . for two
yere. The seconde 20 franc. for 3 yere. The
thyrde 100 francs for one yere. And the
fourthe hath layde 40 franc. for 4 yere, and
they haue gayned 454 franc. I demaunde
how moch eche one ought to haue of wyn-
nyng after the money that he hath layd,
& after the tyme that he hath holden his
money in gayne for company. Answer.

For

For to knowe this rule and all other sem-
blable, ye shall multiplye the monye that
eche one hath layde by the tyme that he
hath holden it in companye. Example.

The fyrste hath layde 10 fran. for 2 yere,
therfore it behoueth you to multiplye 10
by 2, in sayenge 2 tymes 10 ben 20. For the
the seconde 3 tymes 20 ben 60, For the thyrde
4 tymes 100 is an 100. For the fourth 4 tymes
40 ben 160 / then it behoueth you to fynde
a dyuysor comune / for eche hath his mul-
typlycator, that is to wytte, the same that
he hath layde, and for to fynde it ye shall
sette togyther all the multiplycatours
that is to wytte the 20, 60, 100, 160 the whi-
che maketh 340, therfore these 340 shall be
the dyuysor commune to all, thenne howe
moche eche one oughte to haue ye maye
se by the ensample here folowynge 454 f3.
The fyrste hath 26 francz and halfe 4 s.
one peny / resteth 140 d.

The seconde hath 80 frances 2 s. 4. d / rest
80 pens.

The thyrde hath 134 frances 1 s. 5 pens /
reste 20 pens.

The

The fourth hath ²¹³ fran. and an halfe ²
s; and a halfe s d. rest ¹⁰⁰ pengs.

20, 60, 100, 160,

340

Multyplycatours. Dyuyfour.

Of reste they haue to deuyde one peny.

The rule of company where as is hole
tyme and partes of tyme.

The marchauntes laye money in cō-
pany for to haue gaynes therby, of
whome the fyyste hath layde ³⁰ fran.
for two yeres. The seconde hath layde ⁴⁰
fran. for one yere & thre monethes. And
the thyrde hath layde ⁶⁰ fran. for thre ye-
res & two monethes. And they haue gay-
ned with this money 44 francz. I demaūd
how they shall deuyde it to the ende, that
eche one haue his ryght after the money
and the tyme that they haue sette and hol-
den for to gayne. Answer. For this rule &
all other semblable, ye shall multyply the
tyme by p money, as we haue sayd aboue,
but for as moche as there be monethes ye
must set and reduce al the tyme of eche one
in monethes, and also yf there were any

h.i. Dages

Dayes ye sholde set all the tyme in dayes.
 The fyrste hath layde 30 frances for 1
 yeres / in 2 yeres ben 24 monethes / ther-
 fore multiplye 30 by 24 there ben 720,
 and these 720 shalbe the multiplycatour
 of the fyrste. The seconde hath layd 40
 fran. for 1 yere and 3 monethes / in one
 yere ben 12 monethes, and 3 doth make
 15 monethes / multiplye 40 by 15, they
 make 600 whych is the multiplycato-
 of the seconde. The thyrde hath layde
 60 francz for 3 yeres and 2 monethes / 3
 yeres ben worth 36 monethes and 2 ben
 38 monethes. Now multiplye 60 by 38,
 and there ben 2280, whych shall be the mul-
 tiplycatour of the thyrde. Now for to haue
 a dyuyso- comune / ye shall set togyder all
 the multiplycato- that is 3600 the dyuy-
 so- comune. They haue to dyuyde 44
 francz. The fyrste hath 8 francz, and halfe
 6 sz. rest 0. The seconde hath 7 franc. 6 sz.
 and half / rest 0. The thyrde hath 27 francz
 and halfe 7 sz. 4 pens, rest 0.

720, 600, 2280,

Multiplycatours

3600,

Dyuyso-ur

A rule of dyuers syluer and dy-
uers tyme

The marchaūtes haue made compa-
nye togyder, of whom the fyrst hath
layd 10 francz. 4 shyllynges for 2
monethes. The seconde hath layd 15 frā.
for one yere. And the thyrde hath layd 6
francz 7 sz. for 8 monethes. and they haue
goten of this money 24 francz. Now they
shall dyuyde it after the money and after
this tyme I demaunde. Answer. For to
knowe this rule and all other semblable
it behoueth you to reduce the money of
of euery man in shyllynges. And all the
tyme in monethes. And then multiplye
the money by the tyme. Ensample. The
fyrste hath layd 10 francz that ben 200 sz.
and 4 ben 204 the wyche ye shall multiplye
by 2 monethes / and they shall be 408
the multiplycatour of the fyrste. The se-
conde hath layd 15 francz for one yere / and
in 15 francz ben 300 sz. and in one yere ben
12 monethes / therfore multiplye 300 by
12, and there shall be 3600 the multiply-
catour of the seconde. The thyrde hath
layd

h.ii.

layde 6 francz 7 shyllinges, and in 6 fea.
ben ¹²⁰ s3. and 7 ben ¹²⁷ s3. for 8 monethes,
therfore multiplye ¹²⁷ by 8, and they shall
be ¹⁰¹⁶ the multiplicatoz of the thyrd. And
for to haue the dypsoz comune, ye muste
reduce togyther all the multiplycatours, &
that shall be the deupsoz commune, as ye
may se by the example folowynge. They
haue 24 frances of wynnynge.

The fyrste hath 2 francz and halfe 8 s3. and
halfe 5 pens and halfe, resteth ¹³⁶⁰ pens.

The seconde shall haue 17 francz. 3 s3. and
halfe d. resteth ¹⁹⁵² pens.

The thyrd shall haue 4 s3. & halfe, 7 s3. 0
pens, & halfe resteth ¹⁷¹¹² pens

408, 3600, 1016.

5024.

Multiplycatours.

Dypsoz.

And they haue to deupde 1 d. of the restes.
For to make the proue ye shall reduce to
gyther the thre sommes that they haue
had. And yf there be moze or lesse the rule
is euill made.

¶ Here foloweth the rule of com-
pany of factours with mar-
chautes seruantes.

¶

If this rule of factours ye may make 3 rules in maner of questyōs that fall amonge marchaūtes. Example 3 marchauntes & factours, and 3 seruauntes oꝝ varlettes haue made company together, and haue clerely gotten 150 franc. whereof the factours oughte to haue the halfe of the marchauntes, and the seruauntes the thyrde parte of the factours, howe shall they dyuīde these 150 franc. Answer. For all suche rules and questyōs it behoūeth you to fynde a number wherein is an halfe and a thyrde, and that shall be 6, and these 6 shalbe for the marchaunt. And the halfe of 6 ben 3, that shall be for the factours, and the thyrde part of the factours is 1 whiche shall be for the seruantes. And than ye shall multiplye the one by 2 other, that is to wytte, the personages by theyꝝ number, 6 tymes 3 ben 48, and these 48 shall be the multiplicatoꝝ of the marchauntes. And than there ben 3 factours, that haue 3, and 3 tymes 3 ben 15, and than there ben 3 seruauntes that haue 1, and 1 tymes 3 is 3, & therfoze the factours shall

ye multiplye by 15 and the seruauntes by 3. Now for to fynde the dypsoz comune ye shall set togyther all the multiplycatours / that is to wyte, 48, 15, 3, whiche ben 66 these 66 shall be the dypsoz comune. Example they haue to dypde 150 francs. The marchauntes haue 109 franc. 1 sz. and halfe 3 d. and halfe resteth 21 d. The factours haue 34 fran. 1 sz. and halfe 3 d. and halfe / resteth 21 d. The seruauntes haue 6 fran. and halfe 6 sz. 4 d. rest 24 pens.

48, 15, 3

66

Multiplycatours

Dypsoz.

¶ They haue to deuyde 1 peny of restes for to make the proue ye shall dypde all the restes by the dypsoz comune. And than ye shall reduce all togyther, for to haue 150 francs.

¶ The rule of factours the whych gate the halfe of the gayne and of the pryncypall.

¶ An other rule in maner of a questyon a marchant hath gyuen 50 franc. to his factour by such couenant that he gouerne them

them for 10 yerres. And at the ende of the
tyme / that is to wyte, at the ende of 10
yerres. And at the ende of 10 yerres / they
shall dvyde the gayne and the pyncypal
It hapneth that the factour wyl go his
waye at the ende of 6 yerres / and he fyn-
deth that he hath gayned a thousande
francs. I demaunde how ought the sayd
factour to be payed, and how moch ought
the sayd marchaunt to haue? Answer.
ye ought to regarde how moche he sholde
haue gayned in those 10 yerres that he
sholde haue holden them in gayne as he
had promysed. Therfore ye maye forme
the questyon, yf 6 haue gotten a thou-
sande / how moche shall be the gaynes
of 10. Multyplye 1000 by 10 and dvyde
by 6 and ye shall fynde that he sholde
haue gotten 1666 fran. and an halfe 3 s.
2 pens. Of the whyche gaynes the mar-
chaunt ought to haue the halfe, that be-
833 francs. 6 shyllynges and halfe and
2 peny. And than take vp those 833 fran.
6 shyllynges and halfe 2 peny of 1000
francs that he hath gayned / and there re-
h,iiii. maye

mayneth 166 francs. 13 shyllynges 5 pens.
 for the factour. Nowe ye maye answere
 that the marchaunt shall haue of the gay-
 nes 833 francs 6 shyllynges, and halfe 18.
 And the halfe of the pꝛyncypall, that is
 to wytte, of 50, that is 25 and there ben 858
 francs. 6 sz. and halfe 1 d. And the factour
 shall haue of gayne 166 francs. 13 sz. 5 pens
 And of the pꝛyncypall 25 that ben 191 fran.
 13 sz. 5 d. And thus maye ye do of all other
 semblable. And it is pꝛoued by the reduc-
 cyon of the two sommes gayned.

The thyrde rule of factours with coue-
 nauntes, y the factour shall gayne
 the halfe of the pꝛyncypall.

An other rule of company of factours
 & marchauntes with couenaunt that the
 factours shall gayne the halfe of the pꝛin-
 cypall and not of the gayne. Example.

A marchaunt gyueth vnto his factoure
 400 fran. that he shall gouerne them for 6
 peres, & at the ende of the tyme the halfe
 of the pꝛyncipall shal be to the factour. If
 happeneth the factour wyl go his waye

at

at the ende of 2 yeres, and hath gayned 200
frā. I demaunde how ought the factour
to be payed. Answer. ye ought to regarde
howe moche he sholde haue gayned yf he
had serued all his tyme, and for to fynd it
ye maye worke by the rule of thre, for ye
must multiplye by his contrarpe, that is
to wytte by 6, and dyuide by his semblaūt
that is to knowe, by 2, in sayenge yf 2 haue
gayned 200 frances / howe moche shall 9
gayne, and ye shall fynde that he sholde
haue gotten 900 franc. and he gayned but
200 franc. wherfore he oughte to make a
gayne 400 fran. to the marchaunt / and he
ought to haue the halfe of the pyncipall,
that ben 200 frances, therfore he oweth 200
vnto the marchaunt, and so he hath losse
all his tyme, and 200 fran. of aduauntage
for the marchaunt ought nothyng to lose
lyke as he had accomplished all his tyme.

The thyrde rule of chaunges for to
vse deceyte or fraude.

Two marchaūtes wyl thaunge theyr
marchaūdyse, & the one begyled the other

h. v.

the

the one hath peper, and that other cloth.
He that hath peper wyl sell for 25 franc.
the hunderth by chaunge, whiche is no
more worth than 20 fran. in syluer con-
tented. I demaunde for how moch ought
the other to sell vnto hym the elle of his
cloth, that is worth but 15 sz. to kepe hym
selte from losse. Answer. For the rule of
thys ye maye saye thus / yf 20 frances of
content gyue me 25 fran. at the chaunge
how moche shall gyue me 15 of content.
It behoueth you to multiplye the 25 by
15, whiche ben 375, the whiche ye shall dy-
uide by 20 and therof cometh 18 sz. 9 d
therfore ye maye saye that he shall sell the
elle of clothe for 18 shyllynges 9 d. And
thus maye ye do of all other.

Two marchauntes wyl chafige theyr
marchaundyse, of whom that one hath 100
pounde of wolfe, that is no more worth
but 15 crones. And he wyl chaunge wyth
an other in a pyce of cloth that is worth
21 crones / and he wyl gyue hym the wolfe
for 17 crones. I demaunde for how moche
oughte the other to sell the pyce of clothe
to the

to the ende that he be not betromped.

Answer. By the rule of thre whan ¹⁵ are worth ¹⁷ deniaunde how moche shall be worth ²¹ Dyuide by ¹⁵ and ye shall fynde the same that ye requyre.

Two marchauntes wyl chaunge theyr marchaundyse / and the one defraude that other that hath peper / and wyl sell it ²⁴ fran. the hondreth by chaunge, whyche is no moze worth but ²⁰ frances in money content, and he wyl haue the halfe in money content. **I** Demaunde for howe mych ought the other to sell the elle of his cloth that is no moze worth but ¹⁵ s³. Answer. ye muste take awaye the money content that the other demaundeth / that ben ¹² fran. for the iust pryce and of the whiche he wyl sell ouer. Therfore take awaye / and wythd^rawe ¹² of ²⁰ fran. wyche is the iust pryce / and there rest ⁸ fran. for ⁸ and ⁴ ben ¹². And ye maye saye by the rule of thre, yf ⁸ gyue me ¹², what shall gyue me ¹⁵ s³. whyche is the iust pryce of the cloth / multiply ¹² by ¹⁵ and dyuide by ⁸, and therof cometh ²² s³, ⁶ d. And therfore the

the marchaunt ought to sell the elle of his
cloth after ²² s³. 6 d. els he shold haue losse.
And thus ye ought to do of all maners of
chaunges and barathes, for yf he þ hath
the peper, demaūded but the thyrde or the
fourth or ² or ³, abate all onely the same þ
he shall demaunde/and then by the rule,
as is sayd. And note ye well that yf ye wyl
multyplye shyllinges, ye shall haue shyl-
lynges. And of cronos ye shall haue cro-
nes, and of frances ye shall haue frances.
And in lyke maner of all other.

Here foloweth many rules & questyōs
to haue the moze knowledge of þ science
of arysmettryke / and the fyrste is of col-
lectes and tallpages.

¶ Enne men owe vnto the kynge of
collecte and tallpage ²⁴ 4 fran. I de-
maūde how shall they dyuyde them
to the ende that eche one paye after the va-
lour of his goodes, for it is reason that
moze be payed by the ryche thenne by the
poure. For he that is moze endowed with
goodes is moze holden vnto god and to
the

the pynce. Answer. It behoueth to know
how moche eche one is worth in his good-
des, and in his possessyons.

The fyrste is wourth 100 francs

The seconde is wourth 400 franc.

The thyrde is wourth 154 franc.

The fourth is wourth 1000 franc.

The fyfte is wourth 1150 franc.

The syxte is wourth 40 franc.

The seuenth is wourth 440 franc.

The eyght is wourth 80 franc.

The nyenth is wourth 600 franc.

The tenth is wourth 300 francs.

Nowe it behoueth you to fynde the mul-
typlycator, and the deuysoz. The multi-
plycator shalbe eche one by hym selfe, and
so for the fyrste it behoueth you to multi-
plye by 100, for the seconde by 400, for the
thyrde by 154, and so muste ye do of the o-
ther: And for to fynde the dyuisor, ye shall
sette togyther all the multiplycatours, as
100, 400, 154 &c. and all that togyther shall
be the dyuisor comune, whiche is 4464
Therfore multiply the collecte, that is to
wytte, 244 for eche one his valour, and dy-
uys

dyde by 4464 / 02 by the halfe that is
222 / and than ye shall wyte how moch
eche one ought to paye . Example .

The fyrste sholde paye 5 franc. 9 shyllyns
ges 3 d. and halfe rest 1464.

The seconde sholde pay 21 franc. 17 shyl-
lynges 3 pens, resteth 1392.

The thyrde sholde paye 8 frances 8 sz . 4
pens resteth 660.

The fourth sholde paye 54 frances 13 shyl-
lynges 2 pens, resteth 1248

The fyfte sholde paye 62 frances 17 sz . 2
pens resteth 96

The syxte sholde paye 2 frances 3 sz. and
halfe 2 pens and halfe. resteth 1032.

The seuenth sholde paye 24 frances 1 shyl-
lyng 0 pens, resteth 1920

The eyght sholde paye 4 frances 7 sz . 5
pens resteth 2064.

The nyenth sholde paye 25 frances 15 sz.
3 pens and halfe, resteth 2088

The tenth sholde paye 27 frances 6 sz . 7
pens, resteth 624

And they haue to dyuyde 2 pens and
halfe of restes. Then whan ye haue all
dyuyded

dyuyded and wypte the somme and the
restes/ ye shall set togyder all the restes,
and deuide them by the dyuysoz comune/
oz by the halfe. And yf there be more oz
lesse/the rule is not well made/ for the re-
maynant of all ought to be dyuyded by
the diuisoz comune. And the proue of this
rule is reduccyon. And marke well this
rule for it is ryght good vnto the coun-
tre where all the goodes be praysed by all
the townes and castels / as it is in many
places of Daulphyne/ and of Prouence.

C The rule of thze mylnes.

C One man hath thze mylnes of whom
one gryndeith eche day 5 septyers of coze-
ne/ and the other gryndeth 7 and the thyz-
des. There cometh a marchaunt that wyl
haue grounden one hundzeth septyers of
cozne, I demaunde how ought the mylner
to dyuyde the cozne to the mylnes to the
ende that eche one haue asstone done as
an other. Answer. For to knowe this que-
styon and rule/ ye must fynde the dyuysoz
and the multiplycatoz/ the multyp. Shall
be eche one by hym selfe/ and the dyuysoz
shalbe

shalbe the thre multiplycatours set togy-
 ther & ben ²⁰. Therfore yf ye wyl knowe
 howe moche corne ought to be layde vpon
 the fyrste mylne, ye muste multiplye
 the 100 septiers of corne by 5 & deuyde by
 20, whiche shall be 25 septiers, that shalbe
 layde vpon the fyrst mylne. And for the
 seconde ye shall multiply 100 by 7 and dy-
 uide by 20, and there shall be 35 septiers, &
 whiche ye shall putte vpon the seconde
 mylne, and for the thyrde ye shall multiply
 100 by 8 and dyuide by 20 & there shal
 be 40 septiers, whiche ye shall put vpon
 the thyrde mylne. And thus may ye do of
 all other semblable. It maye be made o-
 therwyse, set togyther the sonnes that &
 thre mylnes grynde that is 20, and by the
 rule of thre ye shall say, yf 20 gyue me an
 100, how moche shall gyue me 5 or 7 or 8.
 And it is proued by addition. Example.

22	3100	3100	3100	100
The fyrste shall haue 25 septiers. The se-				
cond 35 septiers. The thyrde 40 septiers.				
7, 5, 8,	20			
Multiplycatours.	Dyuyfour.			

The

The rule and questyon of a
shepe herde or pastour.

Ifoure men haue ³⁰⁰ shepe or mou-
tong, of whome the fyrst ha² an ¹⁰⁰
shepe/ the seconde ⁴⁰, the thyrde ¹⁵⁰
and the fourthe ¹⁰ And they gyue vnto a
shepeherde for to kepe these shepe ²⁵ f³. for
a yere. I demaūde how ought the one to
paye of the ²⁵ fran. after the shepe that he
hath. And how longe time ought eche one
to haue hym at comense or meat. Answer.
For to knowe this rule and all other sem-
blable, it behoueth you to fynde the multy-
plycator and the diuysor, the multiplyca-
tor of the fyrste shall be ¹⁰⁰, of the seconde
⁴⁰, of the thyrde ¹⁵⁰, and of the fourth ¹⁰, &
than set togyther all these somes the whi-
che ben ³⁰⁰ the dyuysour comune. Or ye
may make it by the rule of thre in sayeng,
yf ³⁰⁰ gyue me ²⁵, howe moche shall gyue
me ¹⁰⁰ or ⁴⁰ or ¹⁵⁰ or ¹⁰, & alwayes dyuysde
by ³⁰⁰ and thus of all other rules.

Ensample of the fyrst.

i. i.

100	8 francs.	6 sz	8 pens	
40	3 franc.	6 sz	8 pens.	
350	12 franc.	10 sz		
30	0 franc.	16 sz	8 pens.	300.

Multyplycatoꝝ.

Dypꝛsoꝝ.

Now foꝝ to knowe how longe eche one ought to nouryshe hym, ye must make the yere in monethes, and than multyplye by the multyplycatoꝝ, as is sayde aboue, & dypꝛde by 300. **O** foꝝ to make it moze sure and certayne, ye shall set the yere in dayes that ben 365 and then multiplie eche one by his multyplycatoꝝ, and dypꝛde by the dypꝛsoꝝ comune, that is to wytte by 300, & ye shall fynde that the fyꝛst ought to nouryshe the shepeherd 121 dayes and a halfe, and a syxte parte. The seconde 48 dayes and a halfe and a syxte parte. The thyrde 182 dayes and an halfe. And the fourthe 11 dayes and the syxte parte of a daye. And thus maye ye do of all other rules.

The rule and question of a vessel
with thꝛe fountaynes
oꝝ holes.

A Vessel holdeth 60 Septiers of wyne
 in the which there be thre fontaynes
 or holes, of whome yf the leste renne
 it sholde empty 1 septyer in an houre / the
 nexte 2 septyers in an houre, and the thyrde
 5 in an houre. It hapneth that it runneth
 at all the thre fontaynes at ones, I de-
 maunde in howe many houres the vessel
 shalbe voyde, & how moche eche one shall
 voyde by it selfe. Answer. For to knowe
 how moche eche one shall voyde. It beho-
 ueth you to fynde the multiplicatours,
 therfore deuyde 30 by 1, and it is 30 which
 is the multiplicatour of the fyrste. For the
 seconde deuyde by 2 and thereof cometh 15
 And for the thyrde deuyde by 5 and that is
 6. And than set togyther all the sommes,
 that is to wyt, 30, 15, & 6, and they be 51, ther-
 fore multiplye eche one by hym selfe and
 deuyde by 51. Example.

30 55 septyers 1 quarte and an halfe.

15 17 septyers 0 quarte and an halfe.
 reste 4 and halfe.

6 7 septyers 0 quarte, reste 12

Multiplicatours,

Deuyfor.

i.ii.

And

And for to knowe in how many houres
this vessel shall voyde, ye shall set togy-
der the thre numbers, that is to wyt, 1, 2, 5
which ben 8 and that 8 is the deuise, ther-
fore deuyde 60 by 8, and ye shall fynd that
in 7 houres and an halfe it shalbe emptye.
And thus may ye do of al other semblable
The rule and questyon of sarasins, for
to cast them within the see.

There is a galle vpon the see wherein
be therty marchaūtes, that is to wit
15 crysten men, and 15 sarazyns, there
falleth great tempest wherevpon it beho-
ueth them to cast all the marchaundyse in
to the see, and yet for all that they be not
in surete from peryschyng, for the galle
is feble and weke, so that by ordynaunce
made by the patrone, it is necessary that
there be caste into the see the halfe of the
therty marchaūtes, but the sarazyns wyl
not be caste in, nor also the chrystiens / then
by an apoyntment made, they shall sette
them downe vpon a rowe, & then counte
them vnto 9 / and he that sholde fall vpon
the 9 to be caste into the see, how wolde ye

set the in that none of the chrystyens shold
be caste into the see. Answer. ye shall ordeyne
them after these meters folowynge.
Post. iiii. quinq; da post duos vnū colloca
Tres numerabis, postea vnū collocabis
Vnū dic panther, & duo consequenter.

Duos post ponas &.iii. siml; hic apponas
Semel dic añ bis, post. ii. vnū terminab;
Primi chrystiani, sunt saraceni; & secundi.
That is to wytte, 4 chrystiens & sarazins
2 chrystyens 1 sarazyn, 3 chrystyens 1 sarazin
1 chrystien 2 sarasyns, 2 chrystyens 3 sara-
zyns, 1 chrystyen 2 sarazyns, 2 chrystiens 1
sarazyn. & for to knowe it moze shortlye
ye maye worke by this verse folowynge,
by the nomber of the bouels.

Populeam virgam matrē regina tenebat

The rule and question of.
a testament.

A Man hath made his testament, the
which hath left his wyfe grate, and
hath ordeyned in his testament that
yf she brought forth a sone, he sholde haue
two partes of his goodes, that is to wyt,
of 1200 cronos, and his wyfe y other part,

i.iii.

and

and yf she brought forth a doughter, then
the moder shold haue two partes, and the
doughter the other parte. It happeneth
whan the man is dede, the wyfe byyngeth
forth a sone and a doughter. I demaunde
how shall they deuyde the 1200 crones. An-
swere. ye shall set 1 for the doughter, and 1
for the mother, for the mother ought to ha-
ue two partes agaynst the doughter, and
set 4 for the sone, for he ought to haue two
partes agaynst the mother. Therfore ye
shall multiplye the 1200 crones by 4 for the
sone, by 2 for the mother, and by 1 for the
doughter. And for to fynde the dyuysoz ye
shall set togyther 1, 2, and 4, whiche ben 7,
therfore deuyde by 7. Example.

4 The sone shall haue 685 crones & an
halfe, 7 s. 8 d. & halfe, resteth a halfe d

2 The mother shall haue 342 crones, &
an halfe 12 shyllynges and halfe, 4 d.
Resteth 2 pens.

1 The doughter shall haue 171 crones,
15 s. 5 pens. Resteth 1 d. 7

Multiplicatoz Deuysoz.

They haue to dyuyde an halfe peny.

The

The rule and questyon for to buylde.
And fyrste for the place.

A Man hath a ground that is in length
100 yardes, and in bꝛethe 70 yardes,
where as he wyl edyfy and buylde
houses, of lengthe 5 yardes, and 4 bꝛethe.
I demaunde how many houses shall he
haue vpon that ground. Answer. ye shall
multyply the lengthe by the bꝛethe in say-
enge 70 tymes 100 ben 7000, and eche house
muste haue 5 yardes of lengthe, and 4 of
bꝛede/multyplye that one by y other, and
they make 20, whiche 20 shall be the dyu-
sor comune, therfore deuyde 7000 by 20, &
ye shall fynde that there shall be 350 hou-
ses. Note well this rule.

The rule & questyon of the walles.

A Manne wyl make a wall 32 fote in
lengthe, and 2 of thychenes, and the
heygth 25 fote, and eche fote shall cost
the makynge 2 s3. I demaunde how moch
shall cost the makynge of all the wall.

Answer. For to knowe this rule, ye shall
multyplye the lengthe by the thychenes in

i.iiii.

saye

sayenge 2 tymes 32 ben 64 / & then ye shall
 multiplye it by heyghte in sayenge 25 ty-
 mes 64 ben 1600, and than multiply by the
 pryce, that is to wytte, by 2 shyllinges, the
 whiche ben 3200 shyllinges, wherof ye shal
 make francz, therfore dyuyde them by 20
 and they ben 160 francz. And so moch shal
 coste the makynge of the wall.

CThe rule and questyon of the couerynge.

If ye wyll haue a house couered with
 tyelles, ye must knowe how many tyelles
 behoueth you to haue vnto the length of
 a lygne, and how many to the bredde.

Example. If the house hadde nede of 54
 fo: the length, and 34 fo: the b:ethe, I de
 maunde howe many sholde be requysyte
 vnto all the house. Answer. Multiplye
 the length by the b:ethe in sayenge 34 ty-
 mes 54 ben 1836 tyelles, and so many muste
 ye haue to couer the house.

The rule & questyon of a garden.

A louer dyd entre into a garden fo: to
 ga:

gather apples for his lady, and vnto the
sayde gardyn ben thre gates, and in eche
gate is a porter, and whan he shall yssue
after that he hath gathered the apples, he
must gyue the halfe of his apples & one,
to the fyyste porter, and whan he is at the
second porter, he must gyue vnto hym the
halfe and one / and to the thyrde porter the
halfe and one, & whan he is forth he hath
no more but one apple to gyue vnto his
lady paramour. ¶ I demaunde how many
apples had he gathered. Answer.

He had one apple whan he was forth, set
to it one, and than it is 2, and then double
the 2 and it is 4, therfore he hadde 4 at the
thyrde porter. Then to this 4 set 1 and that
is 5, and then double them and that is 10
therfore he hath 10 apples at the seconde
porter, to this 10 sette 1 and it is 11, double
them, and that ben 22 appels. Therfore ye
maye say that he had gathered 22 appels.

The rule and questyon of a
ladder or stayre.

I haue sene a stayre that had 100 step-
pes,
i. v, pes,

pes, in the fyrste steppe was 1 douffe in the
 seconde step 2, in the thyrde 3, in the fourth
 4, and so vnto 100, I was demaunded how
 many douffes were in all the stape. I an-
 swered 5050. Probacyon I wyll gyue you
 certayne of all numbers that do procede
 naturally, that is to wyte, 1, 2, 3, 4, 5, 6, 7, 8,
 9, 10, And infynitely as ye wyll, for all nō-
 ber naturall is ended in number euen or
 in number not euen, yf it be ended in nom-
 ber euen, than by the halfe therof multiply
 the number not euen, that encloseth it
 Example. 1, 2, 3, 4, wyll ye knowe what all
 amounteth vnto in sayenge 2 tymes 5 ben
 10, for 2 is the halfe of 4, and 5 is the nom-
 ber not euen that encloseth 4. And yf the
 number ende in number not euen. As by
 ensample, 1, 2, 3, 4, 5, wyll ye knowe what
 all amounteth vnto. Multiply 5 by his
 greater halfe, that is 3, sayenge 3 tyme 5
 ben 15. And thus shall ye alwayes doo in
 what number so euer it be euen or not
 euen &c.

The rule and questyon
 of two men.

¶

If two menne go by one waye, and
that they go into any farre place, and
procede in suche wyse, that the one
procede eche daye certeyne number of my-
les, that is to saye 4 and 6 more or lesse.

And that other man goeth encreasynge
the fyfthe daye one myle, the seconde daye
two, the thyrde thre, and so in encreasyng
after progressyon. We ye all certayne that
in some day the one ouertaketh the other.

It is demaunded in what daye, and how
many myles they shall go. Answer.

Double the number of his myles that
goeth eche daye an egall number of myles
And of the number double, take awaye
one vnyte, and the remanaunt shall shewe
you what daye they shall mete eyther o-
ther.

Example.

We shall set it that the one goeth a daye
6 myles, double that and it is 12, and fro
that 12 withdawe one vnyte, as it is sayd
in the rule, and there remaineth 11, that is
the number of the day that they shall mete
together. And for to knowe the number of
the

the myles that they haue gone. Multy-
 plye ⁱⁱ by 6, in sayenge 6 tymes ⁱⁱ ben 66
 myles that they haue gone. Thus ye may
 knowe it by the rule of progressyon con-
 tynued, ⁱⁱ is a number not euen, be it ther-
 foze multyplied by his greater halfe that
 is to wytte by 6 in sayenge ⁱⁱ tymes 6 or 6
 tymes ⁱⁱ ben 66. And also one onely nom-
 ber amounteth by progressyon, & by mul-
 typlicatiō, wherby it appereth that vpon
 the elleuenth daye they mete eche other, &
 haue gone 66 myles.

The rule and questyon of thze women
 that bare apples to the market.

The women bare apples well & ho-
 nestly trymmed to the maket, of
 whome the one bare 50 the other 30,
 and the thyrde 10/ theyr housboūdes were
 brethern and gaue cōmaūde ment to them
 that they shold make as good market one
 as an other, that is, that they sell all after
 one pryce, & that the one brynge as moche
 money home as the other. I demaūde
 howe that maye be done. Answer. It is
 possi-

possyble. For fyrste there cometh a marchant to her that hath 50 appels / and sayth to her howe many for one peny / and she answered 7 and so she maketh 7 d. of her 50 appels and hath remaynyng one apple. The other solde after the same pryce. And she that had 30 appels solde hers for 4 d. and had remaynyng 2 apples. The other that had 10 apples solde hers for 1 d. and she had remaynyng 3 apples. And then came there another marchant that gaue 3 d. for an apples. And so eche one bare home 10 d. as ye se in thys ensample. And thus may ye do of al other semblable.

The rule and questyon
of the bagge.

A Marchant hath a bagge that weygheth 19 ounces of thre mettalles, wherof 7 ounces ben of golde 8 of syluer, and 4 of coppe. And he wyl take therout 5 ounces. I demaunde howe moche of golde, howe moche of syluer, and howe moche of coppe is in these 5 ounces. Answer, ye shall multiplye the 5 for to knowe

knowe the golde by 7, for the syluer by 8
and for the coper by 4. And for to fynde
the deuysoꝝ, ye shall sett all the multiply-
catoꝝ toggyther, that ben 19, therfoꝛe de-
uyde by 19. The answere is in this ensam-
ples ounces.

7 Of golde 1 ounce and an halfe 8 pens
5 graynes. Resteth 1 d.

8 Of syluer 2 ounces, 2 pens and halfe,
1 halfe grayne. Resteth 2 pens.

4 Of coper 1 ounce 1 peny 6 graynes.
Resteth 6.

C Now set the remeynaūt toggyther and
dvyde it by the dvysoꝝ comune, that is
19. And it is 1 halfe grayne.

C The rule and questyon of the bell.

In a chyrche is made a bell, and there
in is put 30 pounde of golde 50 li. of
syluer, 100 of tynne / and 102 of coper.
Whan the bell is made there remayneth
40 pounde in one pyece, that they wyll sell
I demaunde how myche is there of golde
howe mych of syluer, how moch of tynne,
and

and how moche of copze. Answer.
ye shall do as aboue is sayde of the bagge
foz ye shall multyplye 40 eche one by hym
selfe, and dyuyde by 282.

Example.

30 Of golde 4 pounde 4 ounces 4 peng,
1 grayne. Resteth 6

50 Of syluer 7 pounde 1 ounce 11 peng,
9 graynes and an halfe. Resteth 57.

100 Of tynne 14 pounde 2 ounces & halfe
10 peng, and halfe 7 graynes.
Rest 114 peng.

102 Of copze 14 pounde 7 ounces 11 peng
and an halfe 5 graynes and halfe.
Resteth 105

Multyplycators. 282 Dyuysoz cōmune
And all dyuyded they haue of restes 1
grayne.

This rule is proued by reduction, set
to the same that remayneth / and dyuyde
by the dyuysoz cōmune, & thereof cometh
1 grayne.

The

The rule and questyon to
chaunge gold into syluer.

A Marchaunt hath 100 frauncz in gold
and he goth vnto a chaūger & sayth,
I haue 100 francz in pyeces of golde
I wolde haue the money therof in small
pyeces, that is to wytte, of 2 pens, of 3 pens
of 4 pens, of 5 pens, of 6 pens, of 8 pens, &
of 10 pens, & I wolde haue as many pyecs
of one as of an other. I demaunde howe
many pyeces of euery money oughte the
chaunger to gyue hym. Answer. ye muste
set togyther all these numbers $2, 3, 4, 5, 6,$
 $8,$ and 10 , that ben 32 the deuysoz commune,
and then ye must make of the francz pens
that is 24000 pens, whiche ye shall deuyde
by 32 , and there ben 750 pyeces of eche mo-
ney, and thus ye maye do of all other seni-
blable.

The rule and questyon of cloth
of dyuers colours.

I haue a pyece of clothe whereof the
thyrde part is whyte, the fourth part
blacke, and 8 elles of graye. I de-
maunde howe moch hath it of lengthe.

An-

Answer. Set ¹², for in ¹² ye shall fynde one
thyrde and one fourth, the thyrde and the
fourth of ¹² is 7, and there remaineth 5/
therfore forme the rule of thye, yf 5 be co=
men of ¹², of how moche shall come 58 mul=
typly ¹² by 8 that is 96, & dyuyde by 5, and
thereof cometh 19 elles and 1 fyfte, therfore
ye maye answer that the ppece of clothe
hath of length 19 elles and one fyfte.

¶ The rule and questyon of spyceryes.

¶ A bourgesse sayd vnto his seruaunte
holde these 13 frances, and go and bye me
peper that costeth 15 sz. the ponde, and su=
gre that costeth 18 sz. the ponde, & of fyne
spyces that costeth 9 sz. the ponde, and
gynger that costeth 13 sz. the ponde, and
cloues that costeth 10 sz. the ponde, and
byrge me as many poundes of one as of
another. ¶ Demaunde how many poūdes
oughte the apotycarye to gyue hym for 13
francz. Answer. ye shall set all the pryces to
gyther 15, 18, 9, 13 and 10, that ben 65 whiche
shall be the dyuysoz, & then ye shall make
k.i. the

the franc; in shyllinges, that is 266 shyl-
lynges. And than ye shall deuyde by 65, &
therof cometh 4 pound / therfore ye maye
answer, that he ought to gyue hym 4 pou-
des of all these spyceryes.

The rule and questyon
of the egges.

A yonge mayden bayzeth egges to the
market for to sell and hyr meteth a
yonge man that wolde play with hyr
in so much that he ouerthroweth & bryketh
the egges euery one, and wyl not paye for
them. The mayde doeth hym to be called
afore the iudge. The iudge condempneth
hym to pay for 7 egges / but the iudge kno-
weth not howe manye egges there were.
And that he demaundeth of the mayde / she
answereth 7 she is but yonge, and can not
well compte, but she and hyr moder had o-
deyned and dysposed the by 2 and 2 & there
remayned 1 egge. Than by 3 & 3 and there
remayned 1 / than by 4 and 4 and there re-
mayned 1 / than by 5 and 5, & there remayned
1 / than by 6 and 6 & there remayned 1, and
at the laste by 7 and 7 and there remayned
none

none / **I** demaunde how many egges there were. Answer. 7²¹. And for to proue it / multiply the nombres one by another in sayege 2 tymes 3 ben 6, 4 tymes 6 ben 24, 5 tymes 24 ben 120, 6 tymes 120 ben 720, and set therto 1 that remayned alwayes & than they ben 7²¹ that which ye shal deuyde by 7 / & there remaineth nothyng / and so she hadde 7²¹ egges. And after this ensample maye the iudge iuge the ponge man to pay.

The rule and questyon of money forgotten with a chaungeour.

Adduocate hath gyuen to a chaungeour money / & hath forgotten howe moch. For to know howe moche and for to haue all his money / he fyndeth subtyltye that ensueth / he sayth to one of his sonnes / of whom he hath many / go vnto such a chaungeour and bryng me a frace. and the tenth part of the money that **I** deliuered hym / and so was it done And another tyme he sayd vnto another sone / go vnto the chaungeour & brynge me 2 fraces, and the tenth part of the remaynant / and so he sayd vnto al, but vnto þe last he sayd /

K. II.

GO

vnto the chaungeour, and brynge me all
 the remaynant of the money, and so was
 it done, and as moche brought the one as
 the other. ¶ I demaunde how moche money
 he hadde, how many sonnes, & how moch
 money eche one of them brought. Answer
 For this thre questyons pose the number
 that they all brought, that is to wytte, the
 tenth ben 10 , and of 10 take one and there
 do remayne 9 , therfore ye may say that he
 had 9 sonnes / and eche one broughte 9 fr .
 And for to knowe how moche he had gy-
 uen to the chaungeour, ye must multiply
 9 by hym selfe, and it is 81 . Therfore he
 had delyuered 81 frances to the chaunge-
 our. For to make the proue lay 81 and take
 vp for the fyrst sone 1 and the tenth parte
 of the remaynant, and in lyke maner ye
 muste do of all other.

¶ The rule and questyon.
 of tyme &c.

¶ A man sayth yf I hadde as moch more
 of tyme as I haue, and $\frac{1}{2}$ halfe, the thyrde
 and the fourth of my tyme that I haue set
 to, I holde haue of yeres 50 , I demaund
 what

what age he hath. Answer. Laye 12, for in
12 ye fynde an halfe, a thyrde, and a fourth
And then set there ones as moche, & that
ben 24, than set thereto 1 halfe, 1 thyrde, &
1 fourth of 12, and they ben 37, and thenne
fourme thy questyon. yf 37 be comen of 12
of howe moche shall come 50. Multyply 12
by 50 and dyuyde by 37, and ye shall fynde
that he hath 16 yeres 78 dayes and a halfe
10 houres resteth 2.

The rule and questyon for to de
uyde dystrybucyons.

If a churche ben 12 chanons 9 prestes
and 6 clerkes they haue to dyuyde a
dystrybucyon of 400 frances, wherof
the chanons haue 3, the prestes 2 and the
clerkes 1, I demaunde howe moche shall
haue the chanons, how moche the prestes,
and howe moche the clerkes. Answer.

Multyplye one number by an other in
sayenge 3 tymes 12 ben 36 that is the mul-
typlycatour for the chanons, 2 tymes 9
ben 18, the multyplycatour for the prestes,
1 tyme 6 ben 6, the multyplycatour for the
clerkes. Howe moche eche one oughte

k.iii. to

to haue ye maye se in the ensample by the
 Deuysoz. Set togyder all the multiplyca-
 tours & they ben 60 / the Dvuysoz comune.

36	240	frances
18	120	frances
6	40	frances
Multiplycatours	Deuysoz	60

CThe rule and questyon of the speyre.

A Speyre is the halfe and the thynde
 parte within þ water, and 9 fote with
 oute. I demaunde howe myche of
 lengthe hath the spere. Answer. Set 6 /
 for in 6 is founde a halfe and a thynde the
 halfe and the thynde of 6 ben 5, and there
 remayneth 1 / for the rule of thye / yf
 be comen of 6, of howe many shall come 9/
 multiplye 6 by 9, and they ben 54 / Deuyde
 them by 1 and they ben 54 / therfore ye may
 answer that þ spere hath 54 fote of lēgth/
 the halfe is 27, & the thynde is 18 / and there
 bē 45 fote within the water, and 9 without
 that is 54. And so maye ye do of all other
 semblable, as of a toure.

The

The rule and questyon of two mē that
went that one agaynst that other

Two men begyn to go and take theyr
iourney that one agaynst that other
vpō one daye and in one houre. For
that one that goeth fro Parys to Londō/
and goeth euery daye 7 myles, that other
goeth from Lyon to Parys, and goeth
eche daye 9 myles / and from Lyon vnto
Parys ben 80 myles. I demaunde howe
lōge tyme shal it be or they mete. Answer.
Set togyder the myles that they go in
one daye / \bar{p} is to wpt, 7 and 9 ben 16 / for me
now the rule of 16 come of 1 daye, of howe
moche shal come 80 that they haue to go /
multyplye 80 by 1 and it is 80 they which ye
may deuyde by 16 & therof cometh 5 / ther-
fore in 5 dayes they mete. The proue is, for
he \bar{p} from Parys to Lyō goeth in 5 dayes,
goeth 35 myles / and that other 45 the wch
ben 80 myles.

The rule and questyon
of a catte.

There is a catte at the fote of a tre the
lēght of 300 fote / this catte goeth vp-
warde

warde eche daye 17 fote, and descendeth
che nyghte 12 fote. I demaunde in howe
ōge tyme shal she be at y toppe. Answer.
Take vp and abate the nyghte of the day,
that is 12 of 17 and there remayneth 5, ther-
fore the catte mounteth eche daye 5 fote/
deuyde now 300 by 5 and thereof cometh 60
dayes then she shal be at the toppe. And
thus ye maye do of ail other semblable.
For of this rule ye maye make 4 questy-
ons, as it appereth in the practyse therof.

C The rule and questyon
of 20 scolers.

If 20 scolers owe vnto theyr hoste 5 d.
tourneyes, how oughte they to paye,
so that eche one paye his duty & gyue
the money of his purse. How moche shal
eche one paye. Answer. Eche one shal
paye 1 peny Barrys, and the hoste shal re-
tourne vnto hym agayne 1 peny tourneyes
and so eche one shal paye the 4 parte of a
tourneyes.

C The rule and questyon of
pylgrymes.

C Twenty pylgrymes, that is to wytte,
men

men, women, and lyttell chylderne, haue
spendyd in drinke ²⁰ pens, wherof the men
paye 3, pens, the women 2 pens, and the ly
tell chylderne halfe pens. ¶ I demaunde how
many men, & how many women, and how
many chyldren be there, for to paye this ²⁰
pens, so that there be ²⁰ persons. Answer.
There shall be one man, 5 women, and 14
chyldren.

¶ The rule & questyō of a chauntour.

¶ A chauntour hath eche daye of rente
fro the courte of the prynce ¹² sz. the which
is payed by knyghtes, damoyelles, and
suyers / of whome the knyghtes paye 2 sz
the damoyells 6 pens, and the suyers 3
pens. ¶ I demaunde howe many knyghtes
how many damoyells, & how many esqy
res ought there to be, to paye this ¹² sz. so
that there be ¹² persones. Answer. There
muste be 5 knyghtes, 1 damoyell, and 6
esqyres.

¶ The rule and questyon for
to dryvne.

¶ If ye wyll cause youre felowe to by
leue that ye shall dryvne howe many pye
ces

k. b.

ces of syluer he hath in his ryght hande
say vnto hym that he put as many ppyeces
in that one hāde as in that ot her And thā
that he take fyue from þe lyht hande to the
ryghte hande/ and than that he put forth
of the ryght hande into the lyfte hande as
many ppyeces as he hath remayning in the
lyfte hande. And there shall remayne 10 in
the ryghte hande.

The rule and questyon
of thze saynctes.

A Holy hermyte is ctyred within a chur-
che wherin there ben thze saynctes/ þ
is to wyt/ saynt Peter, saynt Paule,
and saint francoys/ this hermyte cometh
fyrst to saynt Peter and sayth to hym in a
maner of his prayr, I pray þ that it pleas
the to double me the great blances that I
haue in my purse, and I shall gyue the 6/
and so was it done. Thā came he to saynt
Paule & sayde to hym, please it the to dou-
ble me þ great blances that I haue in my
purse and I shall gyue the 6 & so was it
done. Then came he to saynt francoys &
sayde, yf it wolde please to double me the
great

great blances that I haue in my purse I
shall gyue the 6, and so was it done / and
nothyng had he remaynyng. I demaund
howe many greates blances had he in hys
purse. Answer. He had 5 and 1 fourth. And
so to knowe it double them and they ben
10 and an halfe, and then ye must gyue 6 to
saynt Peter, and there remayneth 4 & an
halfe, double them & they ben 9. And then
gyueth he 6 to saynt Paule, & then there
remayneth 3 double them and there ben 6
and that 6 gyueth he to saynt Francoys,
and so he hath nothyng remaynyng.

Here folowe dyuers other proper
rules and questyons.

A Lozde byzeth a seruaunt the whiche
he sholde gyue euery yere 10 nobles,
and a gowne, and the same seruaunt
dwelleth 7 monethes with hym, and then
they varpe in so moch that his lozde gaue
hym lycence to go his waye. And sayth, go
thy wayes out of my house and take thy
gowne with the, and then I am nothyng
in thy dette. Now I demaunde what was
the gowne worth. wyl ye know that, then
marke

marke how many monethes 7 is lesse than
a yere, that is 5 monethes lesse. And had þe
seruaunt tarped so long yet by his mayster
than shold he haue had the gowne & 10 no
bles. Therfore saye thus 5 monethes gy-
ueth 10 nobles, what gyueth 7. Make it af-
ter the rule of thre / & it cometh 14 nobles.

Of thre felowes or yonge men.

Thre felowes play togyther the one to
wyne the others money. For the one had
more money than the other. And the fyrste
casteth, þe the one of them thre leseth iust so
mych money as þe other two hadde. Then
casteth the second and leseth also as mych
as the other two hadde. Then casteth the
thyrde and leseth also iust as mych as the
othere two had. And than was the money
iust deuyded, & had eche lyke moche. Now
I demaunde how moche had eche or they
began to playe, & how moche money that
eche had whan they played. Wyl ye know
that, then marke how many persons dyde
playe, and adde 1 to them, as here adde 3 to
5 maketh 4. So many nobles had þe fyrst.
Now double 4 cometh 8, & subtra 1 from 8,
rest

rest 7, so many nobles had þ̄ seconde. The
double 7 cometh 14, therof subtra^r rest 13,
so many nobles had the thyrde.

An other questyon.

A Man byeth 46 pound of saffron for
30 pounde, what shall cost 63 poun-
des of saffron. wyl ye knowe that, then
multyply the 30 poun-
des of saffron, cometh 1890. Now deuyde
them with 46 cometh 41 poun-
des and $\frac{4}{46}$
parte of a poun-
de to paye for the 63 poun-
des of saffron. Now wyl ye knowe howe
many shyllinges that $\frac{4}{46}$ parte of a li. is,
than multyply 4 by 20, for 20 sh maketh a
li. cometh 80 sh. deuyde them with 46 com-
meth 1 sh. and $\frac{34}{46}$ parte of a sh. Now wyl
ye knowe how many pens that $\frac{34}{46}$ parte
of a shylling is/then multyply 34 with 12,
12 pens maketh a sh. cometh 408, Deuyde
them with 46 cometh 8 pens and $\frac{40}{46}$ part
of a peny. Now wyl ye knowe how many
farthynges that $\frac{40}{46}$ parte of a peny is,
then multyplye 40 with 4, for 4 farthyng-
ges

ges maketh a peny, cometh 160 farthynges. Now deuyde them with 46, cometh 3 farthynges and $\frac{22}{46}$ parte of a farthyng, Thus done ye shall fynde that 63 li. of saffron coste 41 li. 1 sz. 8 farthynges and $\frac{22}{46}$ parte of a farthyng.

Item a 165 poundes of alome coste 2 poundes 5 shyllynges 6 pens 9 farthynges / what shall coste 22 poundes of alome If ye wyl soyle this questyon, than make of your poundes shyllynges & adde thereto the odde 5 shyllynges / cometh 45 sz. Then make of the 45 sz. pens, and adde 6 pens, cometh 546 pens, than make of your pens farthynges, and adde thereto the 9 odde farthynges, cometh 2193 farthynges. Now multiplye the farthynges with 22 cometh 48246 farthynges. Now deuide them with 165 cometh 592 and $\frac{66}{165}$ part of a farthyng, for soo many farthynges shall coste 22 li. of alome. Nowe wyl ye knowe how many pens that the forewrytten farthynges make, then dyuide them with

with 4, for 4 farthynges make a peny.
Then wylle ye knowe how many shyllyn-
ges that they make, then deuyde the pens
wth 12, for 12 pens maketh a sz. Thus done
ye shall fynde that 22 pound of alome cost
6 sz. 3 d. 1 farthyng, and it is done.

An other questyon.

A marchaunt hath bought a bagge of
peper, I saye not howe heuy, but whan he
gyueth for a pounce of peper 12 pens, then
remaineth hym yet 37 d. And when that
he gyueth for a pounce of peper 15 pens,
then he lacketh 44 pens to paye for the pe-
per. Now I demaund how heuy the bagge
of peper was, and how moche money that
the marchaunt had. For to knowe this &
suche other lyke questyons, ye shall take
and subtra 12 from 15 and there resteth 3,
whiche 3 shalbe your deuyso. Then shall
ye adde 44 and 37 togyther/and that ma-
keth 81. Then muste ye deuyde 81 with 3, &
therof cometh 27, so many pounce wayeth
the bagge of peper. Now wylle ye knowe
how moche money the marchaunt hadde,
then

then muste ye multiplye ¹² with ²⁷, and
adde ³⁷ therto, or multiplye ¹⁵ with ²⁷ and
subtra ⁴⁴, cometh ³⁶¹, so many pens hadde
the marchaunt.

An other questyon.

A Drunkart drynketh a barell of bere
in the space of ¹⁴ days, and when his
wyfe drynketh wth him than they drin-
cke it out within ¹⁰ daies. Now I demaū-
de in what space that his wyfe shold drin-
cke that barell of bere alone. For to soyle
this questyon & suche other lyke, ye shall
fyrst subtra the leest drynker from y^e moze,
that is ¹⁰ from ¹⁴ and ther remayneth ⁴, &
that is your deuysoz. Now saye ⁴ gyueth
¹⁰ what gyueth ¹⁴. Make it after the gol-
den rule, and ye shall fynde that she shold
drynke it in ³⁵ dayes.

Here endeth the introduc-
tion of awgryn for
the pen.

**Here begynneth the introduction for
to lerne to reken with the coun-
ters, with dyuers rules be-
longynge to the same.**

C. thousande

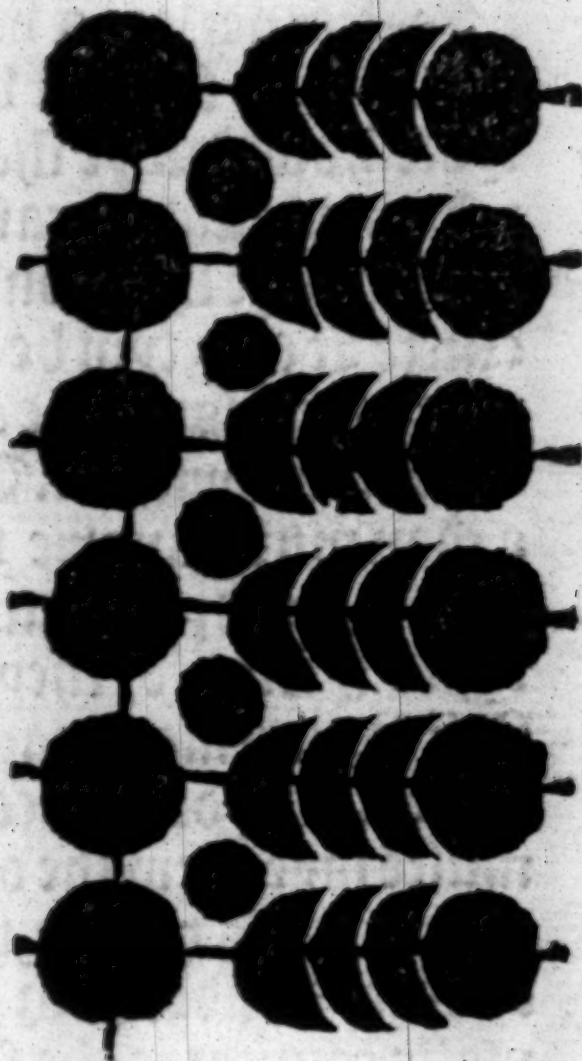
℥. thousande

Thousande

Hondreth

Ten

One



l.f.

For as moche as there ben many per-
sones that be vnlearned, and can not
wryte, yet neuertheles the crafte of
science of awgrym and rekenynge is ne-
cessary for them to knowe, wherfore I shal
hereafter declare & wryte of this science in
the best and shorrest wyse that maye be pos-
sible, how that ye shall order your selfe in
rekenynge and to caste a counter.

Fyrste ye shall vnderstande that in the
crafte of awgrym be 9 letters or fygures
that men maye laye and wryte all maner
of sommes withall. Therfore fyrste of all
a man muste knowe in this crafte or sci-
ence for to laye 9 counters in the places of
that 9 syfers, for they must laye euermore
styll for a remembraunce, so that ye maye
remember your place by theym. And ye
muste laye them the one ryghte aboue the
other, that is to saye, in y^e fyrst place euery
counter standeth for one, and the nether-
moste counter is the fyrste place, in the se-
conde place euery counter standeth for 10
In the thyrde place for a 100. In y^e fourth
place for a thousande. In the fyfte place
for

for 10 thousande. In the syxte place for
100 thousande. In the seuenth place for a
myllyon. In the eyghte place for 10 myl-
lyons. In the nyenth place for a hondreth
myllions. In the tenth place for a thou-
sande myllions, and so forth infinitely.
And note well that euery counter that is
layde betwene the lygnes, betokeneth e-
uer moze & tymes moze thenne the counter
that lyeth in the place nexte vnder hym/
that is to saye the fyfte counter lyenge a-
loue aboue the fyfte place betokeneth
the counter lyenge alone betwene the se-
conde and the thyrde lyeer and place, stan-
deth for 50, aboue the thyrde place 5 hon-
derth, aboue the fourth 5 thousande, abo-
ue the fyfte place 50 thousande, aboue the
syxt place 500 thousand, aboue the seuenth
5 myllions, aboue the eyght 50 myllions,
aboue the 9 place 500 myllions, aboue the
tenth place fyue thousand myllions. But
yf ye wyll the moze surer knowe your pla-
ces it is necessary for you to marke euery
place with a marke, as to lay a counter or
some other thyng which shal euer lay styll

l.ii, and

and in no wyse be remeued/ but ye muste
take hede yf ye laye counters for the marke
of your places, that ye laye them not to
nygh the counter that ye must worke with
all, lest that ye take the one for the other,
but lay them as ye se them markyd in the
ensamples folowynge. And whan ye haue
layd markes and knowe the order of your
places, ye maye adde, and subtra, multiplye
and deuyde what numbers ye lyst,
that is to say, to cast and to abate at your
pleasure.

Item whan there lye 2 counters be-
twene two lvers, take hym vp and laye
1 besyde the nexte lver aboue them. And
whan there lye 5 counters besyde any lver
take them vp and laye 1 in the next space
aboue them.

Of addycyon.

A Dycyon is none other thyng but
to set togyther 2 or 3 numbers and
to make of them a totall somme/ as
ensample folowynge.

here is a man wyche owyth 20 li.

18 pounde, 100 pounde, 50 pounde, and
69 pounde. Now yf ye wyl knowe howe
mych þ al these sommes maketh togyther
Then for the fyrst somme ye must lay two
counters besyde the seconde lye / for the
two stande for 20 / that is for the fyrste
somme. Now for the seconde somme laye
1 counter besyde the seconde lye, for that
is 10 / and lay 1 counter betwyxe the ne-
thermost & the seconde lye, for that 1 stan-
deth for 5 / and then laye 3 counters be-
syde the nethermost lye / and they all to-
gether make 18. Now for the thyrde som-
me ye shall laye 1 counter besyde the thyrde
lye / for that is an 100. For the fourthe
somme laye 1 counter betwyxe the thyrde
and the seconde lye, that is 50. Now for
the fyfte somme lay 1 counter betwyxe
the thyrde and the seconde, and 1 besyde
the seconde lye, and 1 betwene þ seconde
and the nethermost, and 4 besyde the ne-
thermost lye, and that maketh togyther
69 / and in so doyng ye shall fynde that
all the forewryten sommes make togyther
247 as ye shall se in the fygure folowynge

liii.

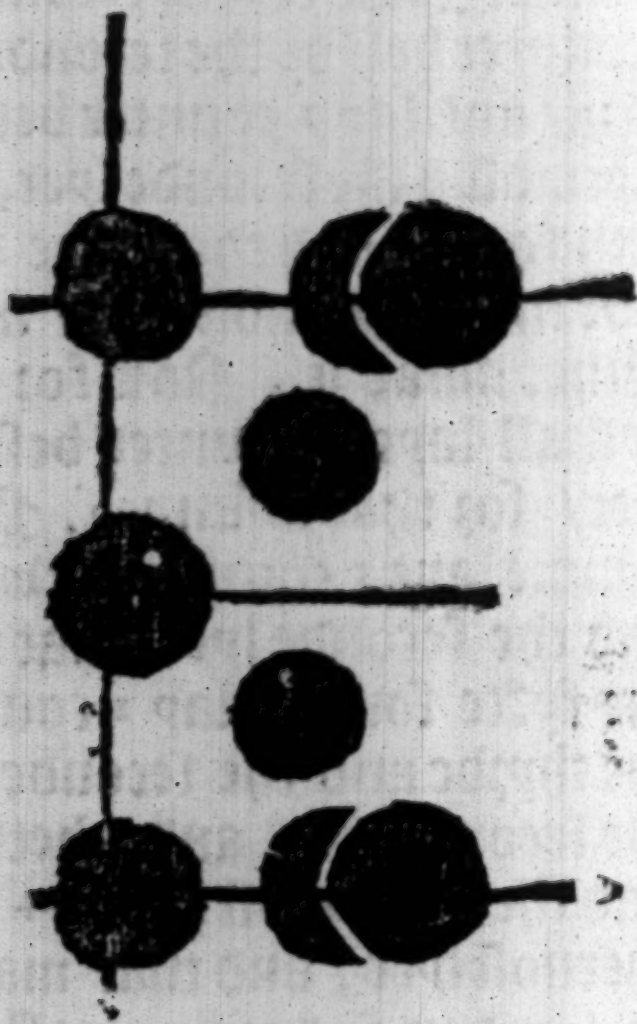
And

And euermore for a generall rule remem-
 bre youre places, for euery counter that
 lyeth besyde the fyrst lyer standeth but for
 1, in the seconde place euery counter stan-
 deth for 10, in the thyrde place for 100 as
 is afoze reherled.

Hondreth.

Ten.

One.



¶ Wylle ye proue whyther ye haue added well or not, than subtra all your sommes one after an other. And in lykewyse as ye do with this ensample so ye shall do with all other of addycyon.

¶ Of subtraction.

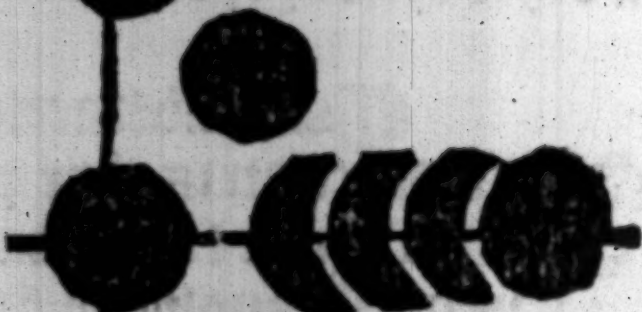
Subtraction is, if ye wylle withdraue any somme frome an other somme ye muste knowe two numbers, that is to wytte, the number that ye wylle withdraue, and the number wherfro ye wylle withdraue. An ensample. There is a man that owyth you 9756 poundes, and there vppon he hath payed you 5989 poundes. Now yf ye wylle knowe what there resteth then set downe your somme that he owght you, & therof withdraue the somme that he hath payed you, and than that remaineth is the somme that he dothe yet owe you, as ye moze playnely maye se it in the ensamples folowynge.

l.iiii.

X. thousande



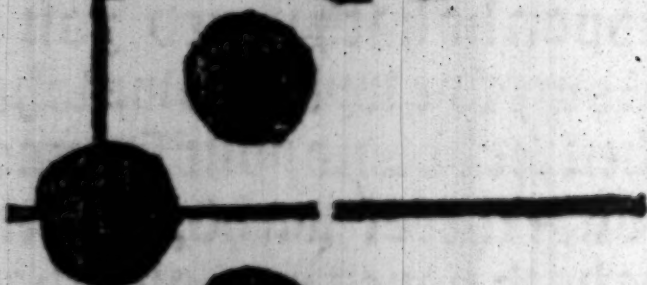
Thosander



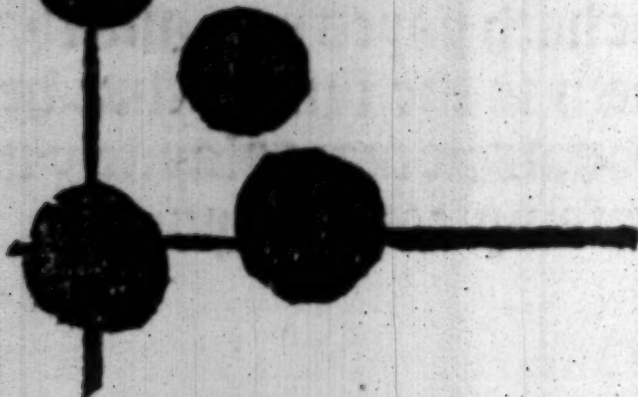
Hondzeth



Ten



One

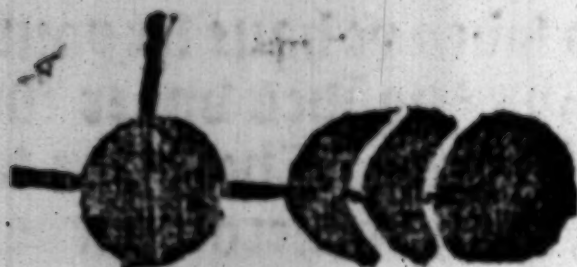


And when ye haue set your det/ that is to
say 9756 pouñdes vnder this maner as a-
foze shewed. Then yf ye wyll knowe the
rest, the take therof that ye haue payed as
5989 pouñdes. Now for to do this/ ye shall
fyrst take vp the couñter that lyeth betwene
the fourth & fyrst lper, for that is 5000. The
take vp one of the couñters which lyeth be-
syde the fourth lper, & that is a thounsād/
& ye sholde take away but 900, therfore ye
must lay downe 1 couñter agayne besyde the
thyrde lper, that is a hondzeth. The take vp
one of the counters that lyeth besyde the
thyrde lper, whych is a hondzeth/ and ye
sholde take vp but 80, therfore ye muste
laye 2 counters besyde the seconde lper /
that is 20 and 80 that ye haue take vp
maketh 100, then take vp one of the coun-
ters that lyeth besyde the seconde lper, &
is 10 / and ye sholde haue take awaye but
9, therfore ye muste laye one counter be-
syde the nethermost lper/ that is 1 and the
9 that ye haue subtrahed or take vp, ma-
keth 10, and there remayneth 3767
pouñde det, and standeth thus,

l.v.

Thou-

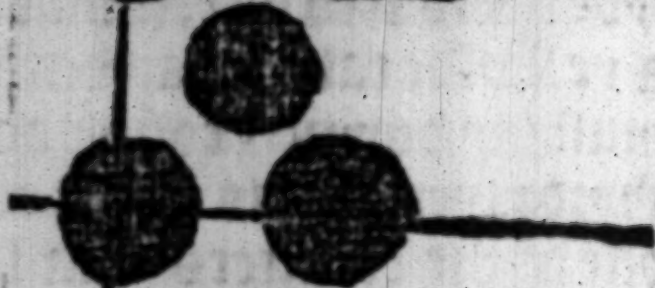
Thousande.



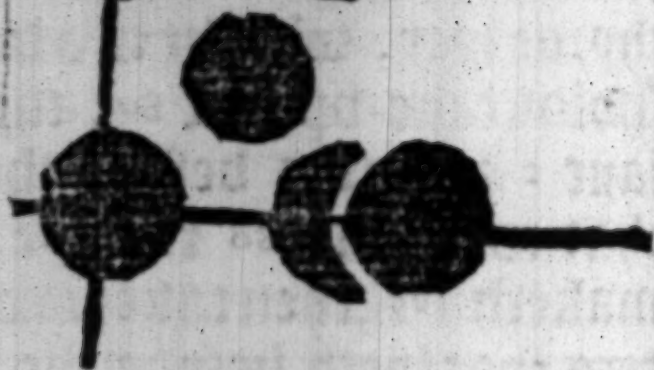
Hondzeth.



Ten.



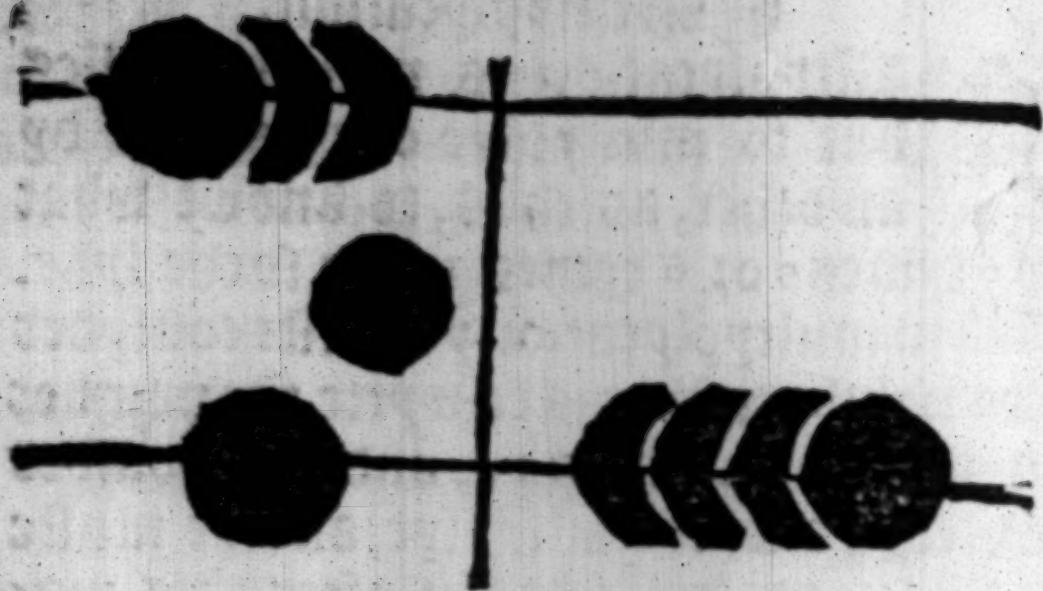
One.



TWyll ye proue whyther ye haue subtra
hed well oꝛ not, then adde therto that ye
haue payed, and yf the somme come then
so great as it was afoze, then is your sub-
traction true oꝛ elles not.

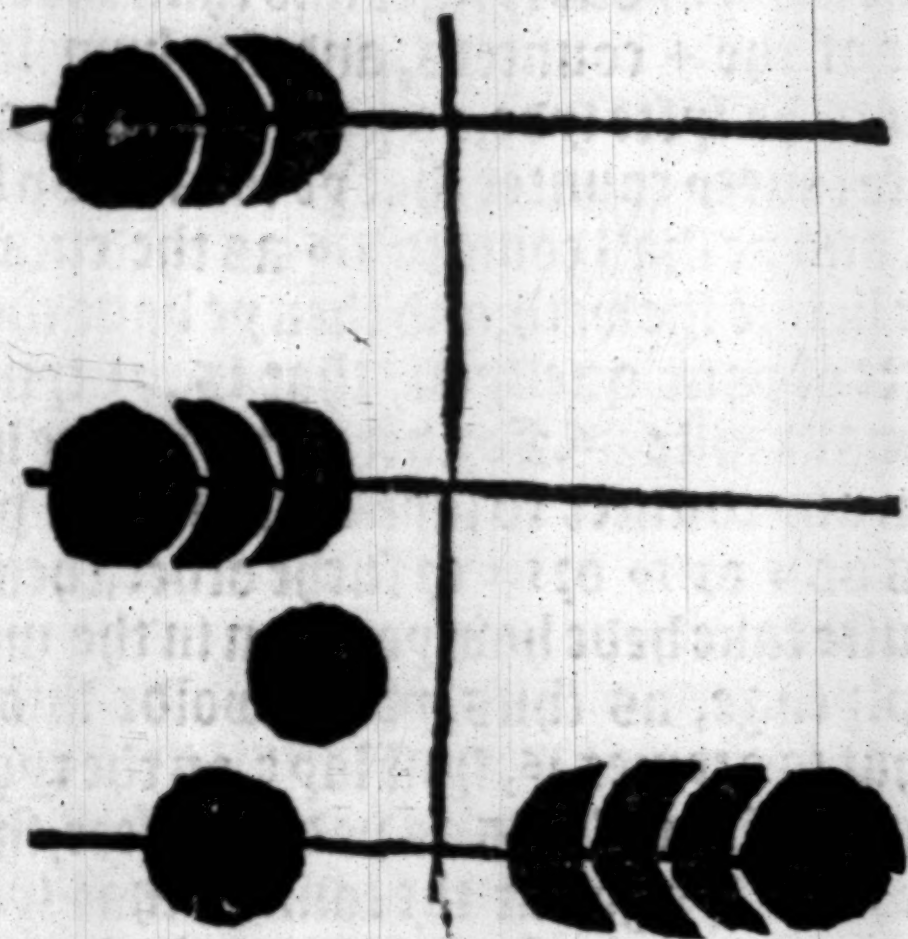
Multiplication.

Multiplication is nothyng else
but to multiplye one number by
an other, as thus, to knowe what
is 6 tymes 9 or 6 tymes 12 and suche lyke.
And in multiplication ye muste consyder
two numbers, that is to wytte, the number
that ye wyll multiplye, and the number
wherby ye wyll multiplye, and ye muste
worke in multiplicatyon after this ma-
ner: fyrste ye shall laye downe the lesser
number, whiche is 6, and this 6 is the nō-
ber that shall be multiplyed, and the 9 is
the number that ye shall multiply withall.
And ye shall laye the number that shall be
multiplied at the ryght syde of your lynes
& when ye worke your multiplication, ye
shall laye them at the lyfte syde, as in this
ensample here after folowynge shall moze
playnely appere.



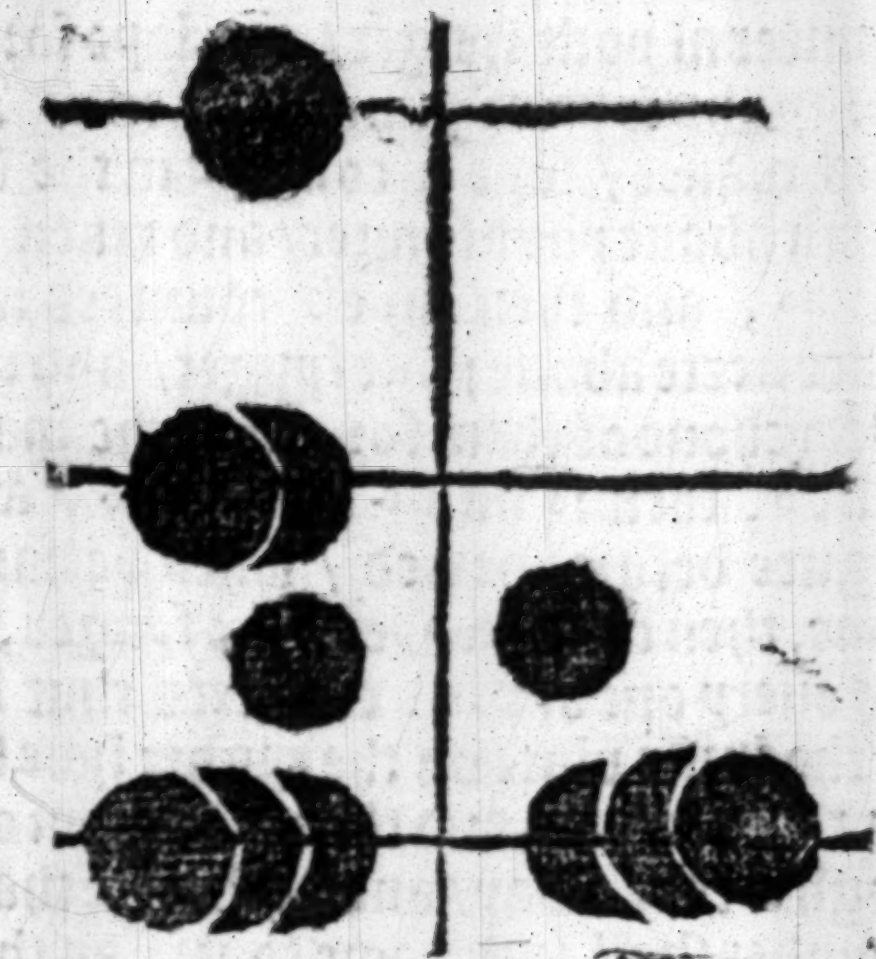
Fyrste ye muste laye downe the lesser number, whyche is 4, as in this ensample, as ye se them layde here on the ryght hande of the lvers. And when that ye haue thus done, ye muste take vp one counter and laye 9 for it on the other syde of the markes / that is to wyte / at the lyfte syde. And after that take vp another counter / and laye also 9 for it / and so for the for every counter that ye take vp ye muste laye 9 for it at the other syde. And when that ye haue so wrought your worke / it wyl come iuste to 36, as ye se the counters befoze layde on the lyfte hande of the lygnes.

And yf ye wyll multiplye by greater
 numbers as thus / to knowe what is 24
 tymes 14 . fyyste laye 14 on the ryghte
 hand of your lper or markers / as this en
 sample fofowynge sheweth.



And then set your fynger agaynste the se-
 conde lper / and that fynger so set doeth
 dāpne all the places vnderneath as though
 that were the fyyste place / and than take

bp the coūter that lyeth in the place where
your fynger is / and nowe reken that se-
conde place to be your fyrste place, & then
laye 24 on the lyfte hande of your marke
as the ensample sheweth. After that done
take awaye your fynger and than take vp
one of the 4 counters, and for hym laye
24 on the lyfte syde, as ye dyd before, and
so for every counter that ye so take vp laye
24, and ye shall come to 336 as the ensam-
ple before sheweth, and then ye haue the ef-
fecte of your questyon, that is, 24 tymes
14 make iuste 336. Forthermore if there hap-
pen any counter to laye betwene the pla-
ces as 5 02 50 02 500 02 suche other, then ye
muste take hede how ye reken in the mul-
typlyenge, as thus, if ye wolde knowe
what is 8 tymes 16, fyrst lay 8 on the ryght
hande of your lypers as ye dyd before, than
set your fynger at the counter that lyeth
alone aboue the fyrste place whiche was
layde for 5, and then reken that place to be
the fyrste place, and then reken the space
that is betwene the seconde place and the
thyrde place, to be your seconde place, so
that



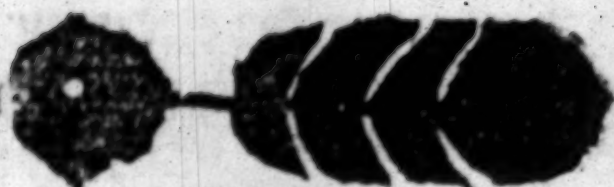
that ye must reken hym 10 from the place
 where your fynger is, but this ye must spe-
 cyally take hede, that ye reken the place
 nexte aboue your fynger to double \bar{v} place
 where your finger is, for if ye take hede ye
 shall euydently se it by reason, for two ty-
 mes 5 maketh 10 , & 10 tymes 5 maketh 50 .
 Then to procede in your questyō, ye must
 worke it after this maner / take vppe the
 counter

counter at your fyrnger / and laye foꝛ it on
the ryght syde of your markes ²⁶ after
this maner / laye a counter in the space
nertþ aboue your fyrnger / and reken hyin
foꝛ 10, and then laye 3 counters in the
place nerte aboue your fyrnger / and reken
euerychone of them foꝛ 2 whiche maketh
iuste 6, then 10 and 6 maketh 16 / as the
fygure befoꝛe shewed / when ye haue so
done, then take awaye youre fyrnger, and
foꝛ euery one of the 3 counters that lyeth
in the fyrste place on the ryghte syde lay ¹⁶
on the lyft syde / and then take them of the
ryghte syde away / and ye shall se that the
nomber shall iuste come to ¹²⁸, as the en-
sample befoꝛe shewed. And thys wyse ye
muste reken all counters that lyeth in the
spaces yf the multiplycacyon shalbe true
ly made.

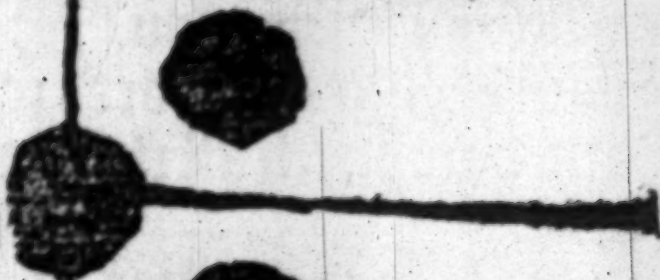
¶ An other ensample.

¶ Foꝛ to knowe howe many grotes be in
⁴⁵⁶³ nobles. Fyrste ye shall set downe the
lesse nomber, that is the nomber that ye
shall multiply, as this fygure folowynge
playnely sheweth,

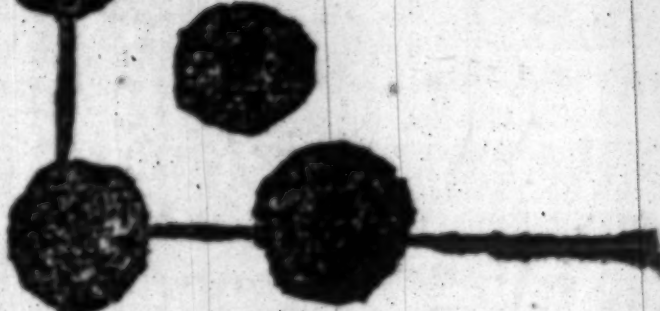
thousand



Hondreth



Ten.



One.



Now for to make of these nobles gro-
tes, ye muste multiplye them with ²⁰, for
²⁰ grotes maketh a noble. Nowe for to
multiply this number/euermore ye must
set downe the number that ye wyl mul-
m.i. typke

typke at the ryghte syde at your markes/
and set youre fynger agaynste the marke
that ye begynne at / for youre fynger shall
be a remembraunce to you / for that place
where youre fynger standeth is the fyrste
place, and dampneth all the places vnder
nethen.

Now for to make grotes of these 4563
nobles. Fyrste ye shall set youre fynger a-
gaynste the fourth lye / and take vp one of
the foure counters that lyeth agaynste
the sayd fourth lye / and lay two counters
besyde the nexte lye aboue that, where
your fynger standeth / for that is the se-
conde place frome youre fynger / and the
two counters so layde standeth for 20 that
is one noble / and lyke as ye haue done
wyth this one counter, so shall ye do wyth
the other 3 folowynge. Then take vp the
counter that lyeth betwene the thyrde and
the fourth lye and laye two counters in
the next space aboue that, and that is also
20 or elles ye maye take it vp and laye one
counter besyde the seconde lye / for the
place where your fynger standeth and that
is

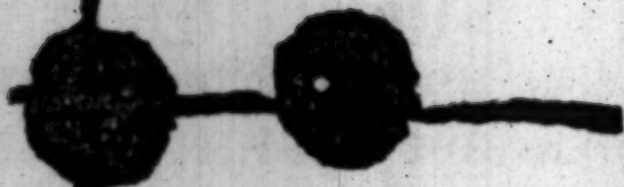
is also 20. Then take bp the counter that
lyeth betwyrte the seconde and the thyrde
lyer, and laye 2 in the nexte space aboue
that / then take bp the counter that lyeth
besyde the seconde lyer, and laye two coun-
ters besyde the next lyer aboue that same.
Then set youre fynger agaynst the fyrste
lyer, and take bp one of the 3 counters,
and laye 2 counters for it besyde the nexte
lyer aboue that / and as ye haue done with
that, so must ye do with the other two / and
then ye shall fynde that 4563 nobles ma-
keth 91260 grotes, and standeth thus as
the ensample hereafter sheweth. And as
ye haue done with these forwryten ensam-
ples of multiplycacyon, so shal ye do with
all other of multiplycacyon.

in.ii.

£.thousand.



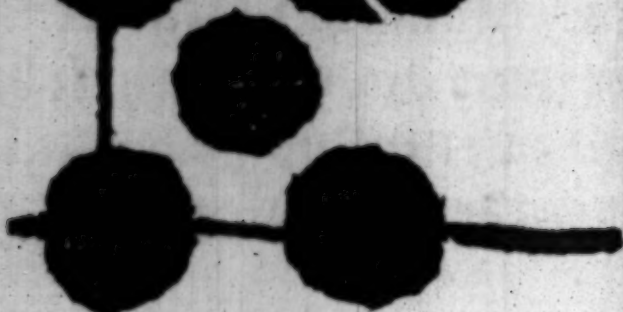
Thousande.



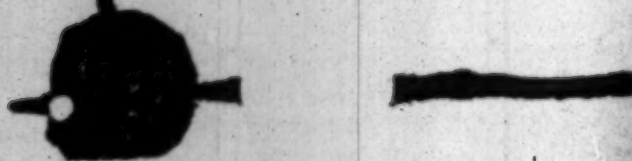
Hondzeth.



Ten.



One.

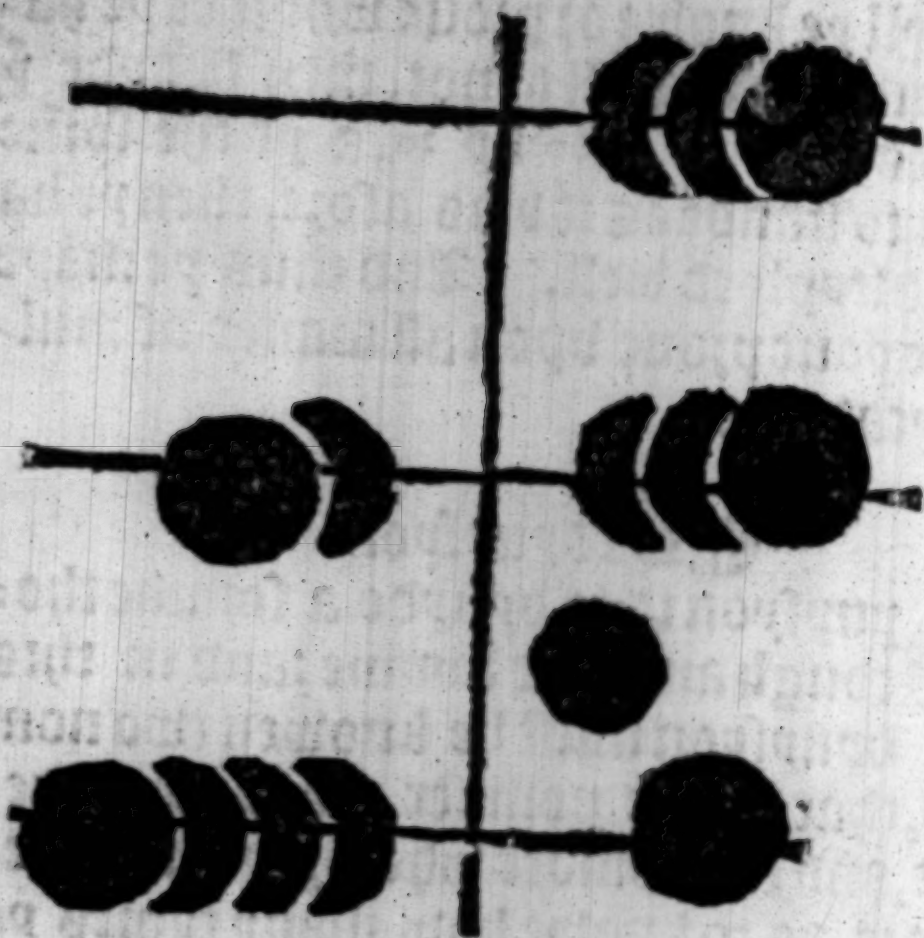


Wyll ye knowe oꝝ pꝛoue whyther ye haue multiplyed well oꝝ not, then deuyde v grotes, that is 91260 by 20 , & yf the somme come to stande as it was afoꝛe, then ye haue multiplyed well. And thus ye maye make your pꝛoue vpon all maner of multiplycatours.

Of dyuysyon.

Dyuysyon is to dyuyde a somme thorough an other somme: and in this dyuysyon must be knowen two numbers, that is the number that ye wyll deuyde, and the number wherby ye wyll deuyde it, as to knowe how many tymes ye maye haue a small number out of a great as by ensample, yf ye wyl deuyde 336 , by 14 as in this ensample hereafter. Fyꝛste laye 336 on the ryght hand of your lyers, & then set your synger at v hyst place where any couiter lyeth, foꝛ as I shewed you befoꝛe, v damneth all the other places benethe, so v then there as your synger is, is the fyꝛste place. And then loke yf ye may take 14 fro that place, whiche ye can not do, foꝛ euery

m.iii. couiter



counter standeth but for one, bycause your
 fynger is there / therfore ye muste remoue
 youre fynger to the nexte place benethe
 where the other 3 counters lye / and then
 take yf ye maye take 14 from that place
 whiche ye maye do ryght well / for these
 3 counters at youre fynger standeth but
 for 3, and the other 3 counters aboue
 standeth for 30, and then se howe many
 tymes

tymes ¹⁴ ye maye haue out of ³³ and so
many counters ye muste laye on the other
syde iust agaynste youre fynger / that is to
saye, ye maye haue ²⁸ out of ³³, that is
two tymes ¹⁴ out of ³³ / and therfore ye
muste take vp ²⁸ and laye 2 counters on
the other syde agaynste youre fynger / and
than ye can haue ¹⁴ no moze / than ye
must remeue your fynger to the next place
beneth, and then reken that place at youre
fynger to be the fyrste place, as ye dyd be-
foze / and then loke howe many tymes ye
maye haue ¹⁴ from that place / whyche
ye can not / for that counter at youre fyn-
ger standeth but for ¹, and the other in the
space aboue standeth but for ¹⁰ whyche is
in all but ¹¹, therfore ye muste remeue
your fynger to the nexte place benethe /
and then ye shall se that that number is ⁵⁶
oute of the whiche ye maye well take out 4
tymes ¹⁴ whyche maketh iuste ⁵⁶, therfore
ye must take vp ⁵⁶ and laye 4 counters on
the other syde agaynste your fynger / and
then take awaye your fynger, and ye shall
se that that number that ye haue layde on
the

the lyfte syde of your markes cometh iuste
to 24, as the ensample befoze shewed, and
then ye haue your questyon soyled, for yf
ye deuyde 336 by 14 it cometh iuste to 24 for
24 tymes 14 maketh iuste 336, as I haue
shewed you befoze in the rule of multiply
cation. And lykewyse as ye haue deuyded
this nomber, ye may do with all other nō:
bers. And yf ye wyl proue whither ye ha
ue well dyuyded oꝛ not, take the nomber
that cometh of your dyuysyon, and multy
plye it with the small nomber, that is your
deuysoꝛ, and adde that remayneth therto
yf there be any, and than it wyl come iuste
to the great nomber that was the nomber
to be deuyded. And lykewyse yf ye wyl
proue whyther ye haue truely multiply
ed oꝛ no, take the greate nomber that co
meth of your multiplication, and deuyde
hym by the nomber that is to be multiply
ed, and it wyl come iuste to the thyrde nō:
ber that was your multyplier.

£.thou.



Thous.



Hödzeth.



Ten.



One.



m.b.

Cyf ye desyre to knowe howe many gro-
tes be in 79992 pens. fyrst ye shall set
downe youre pens as ye se in thys fygure
afoze, and ye shall deuyde them wyth 4
foz 4 d. maketh a grote. Now to the opera-
cyon therof, whan that ye haue set downe
your pens, as the fygure afoze shewed/
than set your fynger at the hyst counter,
and se yf ye maye haue 4 from that place/
which of a suretie ye can not, foz there ly-
eth but one, and it standeth but foz one, by
cause your fynger standeth there, therfore
ye shall remeue your fynger and sette it a-
gaynste the fyfte lye, and se yf ye maye
take awaye 4 the whiche ye maye do, foz
there lyeth 7. Now your fynger standeth
agaynste the fyfte lye, therfore ye shall
take vp the counter that lyeth in the nexte
space aboue your fynger, foz that counter
is 5, and ye sholde take vp but 4 therfore
ye shall take it vp and laye it besyde the
fyfte lye of the ryght syde, and laye 1 on
the lyfte syde also beside the fyft lye, then
se yf ye can haue 4 any moze from 6 place,
6 which ye can not, therfore remeue your
fynger

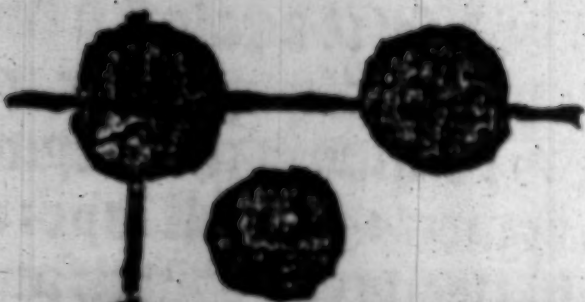
finger and set it against þ fourth lier, and
then se how many tymes 4 ye maye haue
out of 39 ye may haue 9 tymes 4, and for
this 9 tymes 4 ye shall laye 1 counter in the
space betwene the fourth and fyfte lper,
and 4 besyde the fourth lper, & that make
9. And as ye haue done with these so shall
ye do with all ather folowynge, and whan
ye haue finished your worke ye shal fynde
that 79992 peng make 19998 grotes as ye
maye se playnely in the fygure here fo-
lowynge.

¶ The proue.

¶ If ye wyl proue whyther ye haue deuy-
ded well or not, then multiplye the grotes
with 4, for 4 pens maketh a grote, and yf
the some come to stande as it dyde afore
then ye haue deuyded well.

¶ Itē when ye deuyde any somme with
d. yf there remayneth any thyng it is pens
And yf ye deuyde by shyllynge, yf there
remayneth any thyng it is shyllynge.
And as ye haue done with these forewry-
ten examples so maye ye do with all other.

£.thousande.



Thousande.



Hondzeth.



Ten.



One.



[The golden rule.

[Regula aurea is called the golden rule for lyke as golde passeth all other metall so this rule passeth all other rules in awgrym. And to the operacyon of this rule muste alwayes be notyd thre thynges of thre numbers, of the whiche two of them must be lyke of names and of kynde, that is to wytte, the fyrste and the thyrde number / & alwayes ye shall multiplye the second number with the thyrde, & that that cometh of the multiplicacion is the number to be deuptyd by the fyrste number that is generall dyuysor / and the quocient of the dyuysor sheweth a number of solucyon of name and kynde of the mydle numbers, as in these ensamples folowynge shall appere.

[If a man byeth 40 egges for 20 pens how many for 12 pens / yf ye wyl soyle this questyon, ye muste multiplye the seconde and the thyrde number togyther / and the producte of the somme that cometh of that multiplicacion, ye shall dyuptyde by the fyrste number, lyke as here is shewed
in this

In this ensample, when ye bye 40 egges
for 20 pence, what shall one pay for 12 egges
ye shall multiplye 20 with 12, cometh 240,
the whiche ye shall deuyde with 40 cometh
6 pence, and so moche shall ye paye for the
12 egges. And thus ye maye do with all o-
ther suche questyons.

CAn other questyon.

Item a 100 appels cost 12 pence, what shall
one paye for 87, ye shall multiplye 12 with
87, cometh 1044, the whiche ye shall deuyde
with a 100 cometh 10 pence $\frac{44}{100}$ parte of a d.
for the 87 appels. Wyl ye knowe how ma-
ny farthynges that the 44 hunderth parte
of a peny is worth, then multiplye 44 with
as many farthynges as a peny is worth,
that is 4 cometh 176 the whiche ye shall de-
uyde with 100 cometh 1 farthyng and $\frac{76}{100}$
parte of a farthinge.

Item 165 ponde of ware cost 2 li. 5. s.
6 d. 9 mytes, what shall coste 22 li. For to
soyle this questyon and suche other lyke,
fyfte

fyrst ye muste make of poundes $\text{£}3$. & adde
 thereto the odde $\text{5 } \text{£}3$. the whiche stande in
 this questyon, and they come togyther to
 $45 \text{ } \text{£}3$. then make of the $\text{£}3$. pens, and adde
 thereto the odde 6 pens that standeth in y
 questyon cometh 546 d. than make of the
 pens mytes, and 24 mytes is a peny, and
 thereto adde the odde 9 mytes, that stan-
 deth in the questyon cometh togyther to
 13113 mytes, and that is the totall some
 of all the $\text{£}1. \text{£}3. \text{d.}$ & mytes togyther. Nowe
 make it after the rule and saye 165 pounde
 of war cost 13113 mytes / what shall cost
 22 pounde / fyrste multiplye the myddel-
 most and the laste togyther, that is ye shal
 multiplye the mytes with the laste, that is
 with 22 , and it shall come to 288486 , deuyde
 them with 165 and it shall come to 1748 my-
 tes and $\frac{66}{165}$ parte of a myte, so many my-
 tes shall the 22 pounde of war coste. Now
 wyll ye knowe howe many pens that the
 forewrytē mytes make / then deuyde them
 with 24 , for 24 mytes maketh 1 peny. Then
 wyll ye knowe how many $\text{£}3$. that the pens
 make, then deuyde them with 12 , for 12 d.

ma:

maketh a £ 3. And thus doynge ye shal fynd
that the 22 li. of wax shal coste 6 £ 3. 20 mytes
and $\frac{56}{165}$ parte of 1 myte and it is done.

Item when there standeth 1 in the fyrst
place, As 1 goos cost 3 d . what shal cost 28 .
ye shal multiplye the myddelste with the
last in sayeng 3 tymes 28 is 84 so many pēs
cost 28 geſe / and it is fynlyshed.

Item in the cōtrary as whan that 1 co-
meth in the latter ende, as here in this en-
sample 20 capons cost 23 pens / what shal
coste 1 capon. For to soyle this questyon ye
shal deuyde the myddelmost with the fyrst
that is 23 with 20 cometh 1 d . and $\frac{3}{20}$ part of
a peny, that is 10 mytes $\frac{4}{5}$ parte of 1 myte
for 1 capon.

Item 17 elles and $\frac{1}{2}$ cost 14 nobles and
 $\frac{1}{3}$ parte of a noble / what shal cost 32 elles
and $\frac{2}{4}$ part. For to soyle this questyō and
such lyke / fyrst ye must breke the fyrst and
last broken togyther crossewyle in sayeng
 1 tymes 4 is 4 , set the 4 by 17 elles Then say
 3 tymes 2 is 6 / set p 6 by the 32 elles. Then
multiplye bothe p numbers of your frac-
tyons

cyons togyther / in sayeng 4 tymes 2 is 8,
 the whiche ye shal set vnder 4 and 6 / then
 it standeth thus, as in the rule of thre / yf
 17 elles & $\frac{4}{8}$ parte of an elle cost 14 nobles
 & $\frac{1}{13}$ parte of a noble / what shal cost 32 elles
 and $\frac{5}{8}$ parte of an elle. fyyst multiply the
 fyyste hole number with the nethermost of
 his broken that is 17 with 8 cometh 136 and
 therto ye shal adde y 4 that standeth a-
 boue 8 cometh 140, the whiche ye shal mul-
 typly with the 3 that standeth vnder the se-
 conde broken cometh 420 that is your de-
 uysoz / then multiply 14 with the 3 that sta-
 deth vnher 1 and adde that 1 therto cometh
 43 that is your multiplycatour / then mul-
 typly 32 with the nethermost fygyre of hys
 broken / that is with 8 and adde therto the
 same 6 that standeth aboue the same 8 co-
 meth 262. Now set it in the rule of thre in
 sayenge 420 elles cost 43 nobles, what shal
 cost 262, multiply the secod with the thyrde
 and then deuyde that that cometh of that
 multiplycacyon wyth the fyyste / and ye
 shall fynde that the 32 elles of cloth cost 26

n.l.

nobles

nobles 16 s . 34 mytes and $\frac{13}{420}$ parte of a myte.

Item whan that there standeth at the begynnyng a hole number with a broken and in the seconde and thyrde place no broken, as here . 36 elles and $\frac{1}{2}$ coste 8 li. what shall coste 16 elles. For to soyle this questyon, ye must multiply the fyrst hole number with the vndermoste fygure of his broken, that is 36 with 2 , and adde the 1 thereto that standeth aboue 2 comynge 73 , and that is poure dypysor, then multiplye 8 li. also with the vndermoste fygure of the broken, that is to with 2 , and it cometh to 16 , then multiplye 16 with 16 cometh 256 the whiche ye shall deuyde with 37 , and it wyl shewe you that there shalbe to paye for the foresayde clothe 3 ponde 10 shyllinges 1 peny 17 mytes, and $\frac{33}{7}$ parte of a myte.

Item when ther standeth in the fyrst noz in the seconde no broken number, but in the latter ende a hole number with a broken,

broken, as here 14 ounces of grayne cost 14 s 3 . what for 9 ounces of grayne and one thyrde. For to knowe this ye shall multiplie the fyrste 14 with 3 that standeth vnder in the broken cometh 42 that is your dyuyso r , then multiplie 9 with 3 and adde that thereto 27 standeth aboue 3 , cometh 28 , then set it thus 42 gyueth 14 what gyueth 28 , make it forth after the rule and ye shall fynde that there is to paye 9 shyllinges 4 p ens for the 9 ounces of grayne and one thyrde parte.

Item when that ye fynde neythere at the begynnyng nor at the latter ende no broken number, but in the myddes a hole with a broken as here. A man bought 48 shepe for 64 crones and $\frac{2}{4}$ what shall coste 18 shepe. For to soyle this questyon ye muste multiplie 48 with 4 cometh 192 that is your dyuyso r , then multiplie 64 with 4 and adde thereto the 2 that standeth aboue 4 , cometh 258 , the whiche ye shall multiplie with 18 cometh 4644 the whiche ye shall dynyde with 192 . And
 R.ii thus

thus ye shall fynde that ye muste paye for
the 18 shepe 24 cronos 4 stuuers & 36 mytes
byabans.

Item when ye fynde no broken at the
begynnyng/but in the seconde and thyrde
one hole with a broken. As 7 elles for 6
pounde $\frac{1}{4}$ what shall coste 16 elles and $\frac{1}{5}$
For to soyle this questyon ye must multiply
the two vndermoste broken nombers
together, in sapenge 3 tymes 4 is 12, the
whiche ye shall multiply with 7 cometh
84 that is the dyuysoz. The multiply eche
with his broken cometh 25 and 49 y which
ye shall multiply one with the other,
cometh 1225, the whiche ye shall deuyde
with 84, and the solucyon shall be to paye
14 li 12 s. 18 d.

When that ye fynde at the begynnyng
and the myddes a hole with a broken, and
at the latter ende standyng a hole without
a broken/as 9 elles and $\frac{3}{4}$ for 5 pounde $\frac{5}{8}$
what shall cost 15 elles, multiply 9 with 4
and adde therto 3 cometh 59, the whiche ye
shall

shall multiplye with 8 cometh ³¹², that is
 your deuyso? then multiply 5 with 8 and
 adde therto the 5 that standeth aboue 8 co=
 meth 45 the which ye shall multiplye with
 4 that standeth vnder the fy?ste broken, co=
 meth 180. Now set it in the rule of thre in
 sayeng ⁵¹² gyues 180 what gyueth 15, make
 it after the rule and it cometh 8 li. 13 sz, 22
 mites and $\frac{19}{57}$ of a myte.

C The rule of compauy.

C There be 3 marchauntes o? compa=
 nyons the whiche laye togyther they? mo=
 ney in marchaundyse, and eche to wyne
 after his inlayenge / wherof the fy?ste layd
 in 170 crones. The seconde 60 crones The
 thyrde 40 crones and therewith they haue
 wonne 50 crones belyde all vncost Now I
 demaunde howe moche that eche shall
 haue after his inlayenge. Now fo? to soyle
 thys questyon and all suche other rules
 of company / ye muste make of they? mo=
 ney that they haue layde in a totall somme
 cometh 250 / nowe saye 250 gyueth 50 what
 n.iii. gyueth

gyueth 150 make it after the rule of thye
 and it cometh to the fyrste man 30 cronos
 wynnynge. Nowe for to knowe what the
 seconde hath wonne, ye shall saye 250
 gyueth 50 wath gyueth 60 make it after
 the rule, and ye shall fynde that the secō-
 de hath wonne 12 cronos, wylle ye knowe
 what the thyrde hath, then saye 250 gyueth
 50 wath gyueth 40 make it after the rule,
 and ye shall fynde that the thyrde hath
 wonne 8 cronos. And thus shal ye do with
 all other rules of company.

CThe rule of company with tyme.

CThye felowes doth marchaundyse to-
 gyther, wherof the fyrst layeth in 50 cro-
 nes for 4 monethes. The seconde 80 cro-
 nes for 2 monethes. The thyrde 100 cro-
 nes for 5 monethes, & withall this money
 they haue wonne 6 cronos besyde all vn-
 cost payde. Now I demaunde what ech
 hath wonne with his money, for to knowe
 this, ye muste multiplye ech mannes
 money

money with his tyme, that is for the
fyyste 50 with 4 cometh 200, set the as
thought he hath layde in so moche, for
the seconde multiplye 80 with 2 cometh
160 set that also as though he had layde
in so moche, for the thyrde multiplye 100
with 5 cometh 500, set that also as though
he hade layde in so moche. Nowe adde
the 3 numbers togythere and then make
it after the rule of compayne and then
shall ye fynde what eche hath wonne with
his money.

The rule of baterynge.

Two marchaunte men wyll chaunge
theyr wares togyther and the one hath a
fyne blacke clothe the whiche is 43 elles
longe, and he wyll gyue the elle no lesse
than 18 pens. The other marchaunt hath
peper, and he wyll sell the pound no lesse
than 13 d. Now I demaunde howe many
pounde of peper the fyrst marchaunt shal
haue for his 43 elles of clothe. For to
sople this questyon ye shall say 13 gyueth

43 what gyueth ¹⁸ / make it after the rule
of 3 and ye shall fynde that the fyrste shall
haue for his cloth ⁵⁹ pounce of peper &
ounces ¹² engelsche and $\frac{4}{13}$ parte of an en-
gylsche.

¶ Of a watte.

¶ A wat ronneth in the fylde and ouer-
ronneth in one mynute / there be ⁶⁰ in an
houre / ¹² rodde of grounde. And a gra-
honde beyng her enemye / foloweth her
and ouerronneth in one mynute ¹⁵ rod-
des of grounde. But of the grahonnde be-
gan to ronne the hare had ronne ²⁰⁰ rod-
des of londe. Now is to be demaunded in
howe many mynutes and how many rod-
des of londe was the hare taken. For to
soyle this questyon and suche lyke, ye shall
subtra the lesse ronnynge out of the more
that is ¹² out of ¹⁵, and there remayneth
³ and therwyth ye shall deuyde the space
that the hare hath ronne afore of the gra-
honde began to ronne / that is ²⁰⁰ rod-
des. And in so doyng ye shall fynde that
the

the grahounde ouertoke the hare in the
 66 mynutes and $\frac{2}{3}$ partes of a mynute
 that is one houre and 6 mynutes and $\frac{2}{3}$ of
 a mynute. wyl ye knowe howe many rod=
 des that the grahounde dyd runne oꝝ that
 he toke the hare / then multiplye 66 and
 $\frac{2}{3}$ with 15 cometh $\frac{3000}{3}$ the whiche ye shall
 deuyde wylh 3 cometh 1000 hole so many
 roddeſ dyde the hounde runne oꝝ that he
 toke the hare.

¶ The rule of two felowes.

¶ Two felowes went togyther out of a
 twone, and the one goeth euery daye 12
 myle, and the other goeth the fyrſte daye
 but 1 myle, and the ſeconde daye 2 myles
 the thyrde daye 3 myles / and ſo foꝝth eue=
 ry daye one myle moze. Now I demaunde
 in howe many dayes / and how many myle
 wente he oꝝ that he ouertoke hys felowe.
 Foꝝ to ſoyle this queſtyon, ye ſhall double
 the myles of hym that wente euery daye
 lyke moche / that is 12 and 2 tymes 12 is

n. b.

24,

24, therof ye shall subtra the one myle that
the other goeth the fyrste daye, and there
resteth ²³, vpon the same daye was the
fyrste man ouertaken of hys companyon:
wll ye knowe in howe many myle, then
multyply ²³ with ¹² cometh ²⁷⁶ for so many
myles went he or he ouertoke hym

CItē there is a felowe gone out of Lon-
don towarde Salysbury / and he goeth
euery daye 8 myles / and another felowe
cometh from Salysbury towarde Lon-
don and goeth euery daye but 6 myle.
Now I demaunde in howe many dayes
shall they two mete. Now for to soyle this
questyon and suche other lyke. Fyrste ye
must adde togyther the number of the my-
les that they go bothe in one daye, that is
8 and 6 maketh ¹⁴, therweith deuyde the
lengthe from the one towne to the other/
that is 60 myles / and in thys doynge ye
shall fynde that they go 4 dayes and $\frac{4}{4}$
parte of a day or they mete.

A lord had hyred a workman the which
he gaue euery day whan that he wrought
5 grotes / and when that he playeth he
spendeth euery daye 4 grotes / and when
that it came to the ende of a 100 dayes the
lord and the workman rekened together
for the workman hadde yet receyued no
money of that lord / and as they had re-
kened they came iust out / for the wor-
man had spent as moch as he had wonne.
Now I demaunde howe many dayes went
he playenge / and howe many dayes dyde
he worke in that 100 dayes . For to soyle
thys questyon ye must adde together both
the sommes of money that is 5 grotes and
4 grotes cometh 9 grotes that is your de-
uysor . Nowe for to knowe howe many
dayes that he had wrought saye thus 9
gyueth me 4 what gyueth me 100 make
it after the rule of thre / and ye shall fynde
that he had wrought 44 dayes and $\frac{4}{9}$
of a daye . Nowe wyl ye knowe howe many
dayes that he playeth then saye 9 gyueth
5 what gyueth 100 make it after the rule
and

and cometh 55 dayes and $\frac{4}{9}$ of a daye.

Of a man that laye in his
dethe bedde.

Item a man that laye in his deth bedde
called his chylderne to hym and sayde vn-
to hys eldest sonne go to the chaunger
where my money standeth and tell hym
that he gyue you of my money 1 pound and
of that that remayneth yet the tenth part.
Then he sayth to hys seconde sone go to
the chaunger as your broder dyd and tell
hym that hy gyue you 2 pound and of that
that remayneth yet the tenth part. And to
the other he sayde that they sholde do as
they? broders hadde done / but euer the
one shold brynge a li. more then the other.
And he sayde to the yongest that he sholde
go and fetch all the money that hys bro-
thers hath lefte there. And when this is
done eche chylde brought lyke moche mo-
ney home, Now I demaunde howe many
chylderne were there, and how moche mo-
ney that eche chylde brought from the chan-
ger

ger and howe moche money was at the chaunger/wyll ye knowe this then subtra the teller that standeth in the broken number that is 1 from 10 rest 9 for so many chyl- dzen had the same man. And so many pou- des starlynge dyde euery chylde fetch frō the chaunger. Now wyll ye knowe howe moche money that there was at the chaun- ger, then multyplye 9 wth 9 commeth 81 100 many poundes starlynge was at the chaunger.

A goldsmyth hath a pyece of 15 ounces and in the same pyece is 6 ounces of golde 5 ounces of syluer / and 4 ounces of copper To this goldsmyth cometh a man or a woman the whych wyll haue made of this pyece a kettell of 9 ounces. Now I demaū- de how moche golde and syluer and copper shall be in this kettell. yf ye wyll soyle this questyon/than say 15 gyueth 9 wat gyueth 6 ounces/make it after the rule of thze and it cometh 3 ounces of gold and $\frac{2}{5}$ part of an ounce. Now wyll ye knowe how moche syluer, than saye 15 gyueth 9 what gyueth 5 ounces/make it after the rule, and it co- meth

meth 3 ounces of syluer. Now wyl ye knowe howe moche coper, then saye 15 ounces gyueth 9 what gyueth 4 make it after the rule and it cometh 2 ounces $\frac{3}{4}$ parte of an ounce, and it is fynysshed.

A man hath a golden crowne of 34 stuers / and a phylppus gulden of 25 stuers / and a ducate of 28 stuers / and with thys money he goeth to the chaunger and wyl haue for it negenmannekens crownes of 6 mites, & of 3 mytes and of 2 mytes, and halfe mytes. Now I demaunde howe moche that he shall receyue of eche for the foresayde golde and receyue of eche lyke moch. For to soyle this questyon and such lyke, then make of all the greate money that he wyl chauuge mytes / for that is the leste coyne that he wyl haue / and cometh 9072 mytes / then loke howe many mytes that al the smal pens be worth that he wyl haue, that is 25 Nowe deuyde the greate somme of the mytes / that is to with, 9072 wythe 25 and ye shall fynde that he muste haue of eche 362 and $\frac{22}{25}$ and it is done.

¶ Of 4 carpenters.

¶ Foure carpenters wyl make a house wherof the fyrst taketh vppō him to make it hym selfe alone in a yere. The seconde wyl make it in two yeres. The thyrde wyl make it in 3 yeres. And the fourth in 4 yeres / Nowe I demaunde of all these 4 wroughte vpon that howse in what space wolde they 4 make that howse. wyl ye know that / then saye the fyrst wolde make it in one yere that were 12 tymes in 12 yere. The seconde in 2 yere, that were 6 tymes in 12 yere. The thyrde in thre yere that were 4 tymes in 12 yere. And the fourth in four yere that were thre tymes in 12 yere. Nowe somme them all together that is 12, 6, 4, 3, cometh 25 / therewith deuyde 12 cometh $\frac{12}{25}$ parte of a yere. Now yf ye wyl know how many dayes that it is, then multiplye 12 wth 365 for so many dayes be in a yere / & that that cometh of that multiplycacyon deuyde it by 25 cometh 175 dayes and $\frac{5}{25}$ parte of a daye.

The

The rule of false posytyons, by
the whiche all maner of Diffycult
and harde questyons maye
easelye be dyscoluyd &
fyyste of one false
posytion.

Now shall ye knowe how by false po-
sityons oꝛ coniectures one oꝛ two ye
shall fynde out the very trewthe of
that the whiche ye seake foze, and fyyste ye
shall vnderstande howe to fynd the trewth
of a questyon proposyd by one coniecture
oꝛ posytyon.

When that any questyon is put furthe
vnto you, too be assolyd, of the whiche
one part is knowyn and the other vnkno-
wyn. Answer to that questyon by and
by, with pouer selfe at all auenture, and
then cōsyder w your selfe whether ye haue
made ryghte answer oꝛ no, yf not, loke
what propoztion is betwene pouer coniec-
ture and that that folowyth of your con-
jecture and the same propoztiō is betwene
the thyng knowen and that y partaynyth
vnto

unto þ selfe thyng beyng yet vnknowen.
As by example ye shal moze playnely per
ceauc.

A certayne wayfarynge man cōpyng
by the waye, founde so many crownes,
that the seconde, the thyrde, & the fourth
parte of them addyd togyther made 50,
I demaunde what summe he founde: To
make answere to this questyon by one po
sycyon: ymagyne some summe that hath
these partes in it, that is to say, a seconde,
a thyrde, and a fourth parte: and be it 12,
whose second part or halfe is 6, the thyrde
parte 4, the fourth parte 3, whiche al ad
dyd togyther 6, 4, 3. make 13. but the sum
that he founde, the second, thyrde, and the
fourth of it made 50. wherfore 12 is not
the sum he founde, therfore this position
is false: & yet by this false shall ye come
to the lyght of treweth, by the helpe of the
rule of thre. For loke what propoꝛcyon is
betwene the seconde, the thyrde, and the
fourthe parte of 12 addyd togyther, the
whiche maketh 13, and 12 whose partes
ther be, the same propoꝛcyon is betwene

50 whiche is the seconde, the thyrde, and
 the fourthe parte addyd togyther of the
 number vnknowen, & the same vnknowe
 number it selfe. Then saye thus with thy
 selfe: yf 13 whiche contayneth the fore-
 sayd partes in them, come of 12 of whome
 come 50, then set them thus 13, 12, 50, then
 by the rule of thre multiplye 50 by 12, &
 therof cometh 600 dyuyde the same by
 the fyrste number 13 and in the quotient
 thou shalt fynde $46 \frac{2}{13}$ the which was the
 summe of the crownes the which the man
 founde: of the whiche summe the halfe
 parte is $23 \frac{1}{13}$ the thyrde part is $15 \frac{1}{13}$ the
 fourth parte is $7 \frac{7}{13}$ the whiche partes ad-
 dyd togyther make iuste 50. Thus thou
 seest how that by one false posicion or cō-
 fecture with the helpe of the rule of thre,
 this questyon is soone dissoluyd.

CAn other questyon.

Fynde me a number in the which 5 is
 $\frac{2}{3}$ that is to say, two thyrde partes of hym
 Answer. ymagyne any number ye lyst, that

that hath thyrdes in it, as be it 6, then
loke what is the thyrdde parte of 6 that is
2, then two of this thyrdde partes of 6 ma
kyth 4 wherfore this posycion is false,
yet by this false posycion with the helpe
of the rule of thre, thou shalt fynde out t
trewth, after this maner. If 4 be the $\frac{2}{3}$
partes of 6 to whome is 5 $\frac{2}{3}$ partes serche
by the rule of thre, thou shalt fynde it $7\frac{1}{3}$

¶ An other questyon.

¶ What number is that in the whiche af
ter that the thyrdde, the fourth, & the fyfte
parte be deductyd out of it, there shall yet
remayne 24? Answer. ymagen any nom
ber that hath a thyrdde, a fourth, & a fyfte
in hym. As for example: say it is 60, then
subtrahe out of hym his thirde, his fourth
and his fyfte parte: and thou shalt fynde
remayne but 15. Lo how muche thou hast
mysted, thou shuldest haue founde suche
a number, in the which after the foresayd
partes were subtrahyd shuld remayne 24
and here remayneth but 15, yet proue by
the rule of thre, and thou shalt fynde the
o.ii. trewe

trewe number. If 13 remayne after the
 substractyō of the aforesayd partes in 60
 what number is that out of the which af-
 ter lyke substractyō of his thyrde, fourth,
 & fyfth, parte shall remayne 24 proue by
 the rule & thou shalt fynde it 110 $\frac{10}{13}$ whose
 thyrde parte is 36 $\frac{12}{13}$ the fourth 27 $\frac{9}{13}$ the
 fyfte 22 $\frac{2}{13}$ which all addyd togyther make
 86 $\frac{10}{13}$ the whiche deductyd out of 110 $\frac{10}{13}$
 shall remayne 24. These and dyuerse o-
 ther questyōs befoze rehersyd by the same
 crafte one false posycyon maye soone be
 assoyled. Now wyll I shewe you howe to
 dyscolue all maner of questyons howe dyf-
 fyculthe so euer they be by two false posy-
 cyons: for by one false posycyon ye shall
 not answer to all maner of questyons,
 but two false posycions, what so euer que-
 styon it be, it may soone haue solucyon.

How to answer by two
 false posycions.

Innumerable questyons do chaunce
in numbres, the whiche though they
can not be dyssoluyd by one posycion
or coniecture yet shall it not mysse but be
assoyled by two posycions: in the whiche
maner ye must dilygently note how farre
aboue y^e trueth or vnder bothe posycyōs
do fall: For by the obseruacyon of. ii. cō-
iectures how nere they be to the trueth, &
the dyfference of the errors whiche ensue
of the posycyons, the verite commeth to
lyght whiche may be done. ii. wayes: one
waye by the rule of bothe moze or bothe
lesse. Another waye by the rule of the one
moze and the other lesse.

When bothe posycions be moze then
the veryte or bothe lesse, then subduce the
lesse errour out of the moze errour, & that
that remayneth shalbe the diuysor: then
multyply the fyrst errour by the seconde
posycion, & the latter errour by the fyrste
posycion, and then this. ii. numbers be-
yng multiplyed, deduct the lesse out of
the moze, and that that remayneth diuide
it by the foresayde diuisor, and the quoci-
ent

ent shall shewe the verite. Example.

The marchaūtes diuided a 100 crow-
nes so that the secōde shulde haue 3 crow-
nes moze then the fyrste, and the thyrde 4
mo the the second: I demaunde now how
many crownes eche of them receaued?
Answer. Fyrste make saynte Andzowes
crosse, as ye se hereafter, then coniecture
what ye lyst, as fo: exāple: Saye the fyrst
had 33, and then muste the seconde haue
36, and the thyrde marchaunt 40, which
sum gathered togyther maketh 109, but
ye had but 100 to dyuide, wherfoze ye ha-
ue myssed, and your posyciō redowndyth
to moze then the very sum by 9, whiche
came of your fyrste posycion 33 wherfoze
set the fyrst posycion 33 at the vpper ende
of the crosse on the lefte syde of the crosse,
and the error which hath ensued of that
at the foote of the crosse on the same syde,
as ye se in the example. And fo: bycause
that this cōiecture came to moze then the
trueth, therfoze set this letter M. in the
space betwene the vpper ende of y crosse
and the nether. And fo: as muche as in
this

this fyrste coniecture ye haue erred thus
 much, coniecte agayne and suppose that
 the fyrste marchaunt had 31 then muste
 the second haue 34, the thyrde 38, al these
 collecte make 103, so that nowe ye haue
 erred agayne, youre posycion beyng to
 much: so that your errour is 3, and for
 because that this seconde posycion is more
 then the veryte as the fyrste was: set the
 posycion 31 at the vpper ende of the crosse
 on the ryght syde, & the errour 3 the foote
 of the crosse on the same syde, & put this
 letter M. betwene the space to sygnifye
 more. Bothe these posycions then be more
 then the verite: wherfore accoꝝdynge to
 the rule fyrst subduce the lesse errour 3 at
 the foote of the ryghte syde of the crosse
 from the greater errour at the foote of the
 lefte syde of the same crosse, remayneth 6
 to be set in the space betwene both p̄fecte
 as ye se: which shalbe the dꝛuysoꝝ. Then
 accoꝝdynge to the rule, multiply the fyrst
 posycion whiche is 31 by the errour of the
 second posycion whiche is 3, and therof co
 meth 99, then the secōd posicio 31 by the er-

four 9 of the fyrste posycyon, and therof
 cometh 279, then deducte the lesse sum 99
 out of this moze summe 279, remayneth
 180, Dyuide this summe by the dyfference
 of the errours which is 6, and the quo-
 cyent shalbe 30 whiche is the trewe posy-
 cyon: for the fyrste man haupnge 30, the
 seconde must haue 33, and thyrde 37, whi-
 che all set togyther, make iust 100. Thus
 wonderfull craftly by these.ii. false posy-
 cyons the trew & iust posycyō is brought
 to lyght.

¶ The example.



**¶ An example when bothe posy-
 cyons come to lesse then
 the verpte.**

When bothe posycions come to lesse
then is the veryte: the whiche is all
one matter with the other, as ye shall
perceave by the same example agayne.
As suppose ye had coniected that the fyrst
had receaved 27, the most the seconde re-
ceave 30, and the thyrde 34, whiche ad-
dyd togyther make 91 whiche is lesse by 9
then the sum 100, the whiche sholde be de-
uided amonge them. Set then this fyrste
false posycion 27 at the vpper ende of the
crosse on the lefte syde, and the errour en-
suyng of that, at the foote of the same
crosse on the same syde. And for bycause þ
this posicion come to lesse then the verite
therfore sette this letter L, for lesse, in the
space betwene the posicion and þ errour:
as ye se in the example folowynge. Then
coniecte agayn and suppose that the fyrst
marchaunt had receaved 29 then by that
tekenynge the seconde sholde receave 32
the thyrde 36, which al set togyther make
97, so that yet this posycion cometh not
to the veryte 100, but lacketh 3 of it. wher-
fore set this posyciō 29 at the vpper ende
o. v. of

of the crosse at the ryghte syde: and this
errour 3 at the foote of the crosse, and in
the space betwene the posycion and the er-
rour set this letter A, for lesse. Nowe for
so much as bothe these posycions be lesse
then the veryte, worke as ye dyd before,
accoꝝdyng to the rule, subduce the lesse
errour 3 out of the greater errour 9, re-
mayneth 6 for the diuisoꝝ to be set in the
space betwene the two errours. The mul-
tiplie the fyꝛste posycion 27 by the second
errour 3 cometh 81, then the seconde con-
jecture 29 by the fyꝛst errour 9 cometh 261
then deducte 81 out of 261 remaineth 180
whiche diuꝝded by 6 the diuꝝsoꝝ afoꝝe
sayde, the quotient shalbe 30, whiche is
the iust and very coniecture, the whiche
ye sholde haue coniected. Thus ye haue
had sufficient example of this fyꝛst rule
of bothe moꝝe, and bothe lesse.

CHere after foloweth the exam-
ple of bothe lesse.

81	180	261
<hr/> 27		<hr/> 29
30		32
34		36
6		3

There foloweth the rule of one
more, and the other lesse.

When the one posycyon amounteth to
more then the veryte, and the other
lesse then the veryte, then adde the er
rours togyther and that addyd number
shalbe the diuysor. Then multiplye the
fyzte posycyon by the seconde errour, and
the seconde posycyon by the fyzte errour,
and that that cometh of bothe these mul
typlycatours adde them togyther also,
then diuyc this addyd nūber by the ad
dyd errours the dyuysor afoze sayd, & the
quocient sheweth the true posycion.

The example.

We wyll take the fyzte case agayne,
and suppose that the fyzte marchaunte
haue

haue receaued 32 crownes, then must the
seconde receaue 35, & the thyrde 39, which
all addyd together make 106. wherfore
that posycion is false and to much by 6,
set the posycion 32 at the vpper ende of
the crosse, and the errour 6 at the nether
ende of the crosse: in the space betwene, ye
shall set this letter M, for more. And for
bycause that this posycion hath exceedeth
the verite, coniecte agayne lesse, and sup-
pose that the fyfte haue receaued 29, then
must the second receaue 32, the thyrde 36
all addyd together maketh 97, whiche is
lesse then the verite by 3, wherfore set this
false posycion 29 at the vpper ende of the
ryght syde of the crosse, and the errour 3
at the nether foote of the crosse: in þe space
betwene set this letter L, for lesse. Of this
two false posycions the one is more then
the trueth, the other is lesse, wherfore ac-
cording to the rule adde both the errours
6 and 3 together, that maketh 9 for the
diuysor: then multiply the fyfte posycio
32 by the seconde errour 3, which maketh
96, and the seconde posycion 29 by the
fyft

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fyfste errour 6, whiche maketh 174, and
that that ensueth of bothe these multiply
cations adde it togyther, and it maketh
170 diuylde this addyd number by the ad=
dyd errours, whiche was 9, and the quo=
cyent shalbe 30 whiche is the trewe posy=
cyon as ye may proue.

The example.

69	270	174
<hr style="width: 50px; border: 0.5px solid black;"/>		<hr style="width: 50px; border: 0.5px solid black;"/>
32	30	29
35		32
29	29	36
6	9	3

Thus maye ye dyscolue all other ma=
ner of questyons, whiche haue ben set be=
foze in this boke, without great payne o:
studye.

Finis.

Printed in Aldersgate
strete by Nycolas
Bourman.

William Godson

